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PERCEPTIONS AND MEANINGS OF TYPE II DIABETES AMONG MEXICAN AMERICAN FARMWORKING WOMEN

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PERCEPTIONS AND MEANINGS OF TYPE II DIABETES AMONG MEXICAN AMERICAN FARMWORKING WOMEN

by

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Dedication

This dissertation is dedicated to my sons and grandchildren.

Andres and Ricardo: Always maintain your integrity; believe in yourselves and love and your family.

Andres Jesus and Devyn Olivia: Respect your parents, be kind to others and make your dreams come true.

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PERCEPTIONS AND MEANINGS OF TYPE II DIABETES AMONG MEXICAN AMERICAN FARMWORKING WOMEN

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The purpose of this phenomenological study was to explore the perceptions and meanings of type II diabetes among Mexican American farmworking women working in California's Northern San Joaquin Valley. Perceptions of type II diabetes play a major role in how Mexican American farmworking women feel about diabetes and these perceptions influence diabetes treatment strategies and health care decisions. Yet, little is known about the perceptions and meanings that farmworking women attribute to type II diabetes. A qualitative interdisciplinary research methodology (integrating knowledge from social work and nursing) involving open-ended, in-depth interviews with a non-probabilistic sample of 17 Mexican American farmworking women was used to gain an understanding of how farmworking women make meaning of type II diabetes. Based on Kleinman's (1980) explanatory model, salient themes in the areas of illness, causation, treatment and perceptions were identified. The study showed that farmworking women have a predominantly cultural perspective of diabetes. A large majority of women applied cultural beliefs and traditional home remedies to the treatment of diabetes; although many

were not opposed to incorporating western medicine into cultural treatment strategies. Causation of diabetes was attributed to a transformation of blood and destabilization of the pancreas as a result of *Susto* (fright), an ethno-specific illness. Home remedy and dosing strategies were categorized and farmworking women revealed subjective definitions of high blood glucose and heredity that are dissimilar to western biomedicine. Understanding how farmworking women conceptualize and make meaning of type II diabetes and including these important culturally influenced beliefs and treatment strategies into interdisciplinary health care practices and service delivery systems can serve as a basis for modifying current medical theoretical orientations about diabetes education, treatment and maintenance strategies and service provision for this particularly vulnerable population. Additionally, the inclusion of cultural beliefs and treatment strategies can engender trust and facilitate meaningful, reciprocal relationships between patients and health care providers, which are considered essential for developing culturally meaningful, effective treatment, and competent and responsible service provision.

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Chapter 1: Introduction

The purpose of my dissertation is to study Mexican American farmworking women affected by type II diabetes mellitus. Specifically, I was interested in investigating how these women make meaning out of symptoms, illness, and treatment. To accomplish this objective, I used a phenomenological qualitative research approach to study farmworking women's perceptions related to their broader experiences with type II diabetes mellitus. A phenomenological study seeks to understand the meaning of individual's lived experiences of the phenomenon being studied (Creswell, 1998). An extensive review of the literature on explanatory models of illness, cultural health beliefs, and Mexican cultural norms suggests that the use of a heuristic approach using semi-structured, in-depth interviews can provide a rich, in-depth composite of individual perceptions. Understanding such perceptions can help practitioners and health care providers develop culturally competent treatment and intervention strategies. In particular, understanding culturally specific beliefs about diabetes is essential to developing culturally appropriate prevention programs for Mexican Americans (Arcury, Skelly, Gesler & Doughtery, 2003).Thus; this dissertation seeks to answer the following questions:

1. How do Mexican American farmworking women know when they are sick?
2. What do farmworking women believe causes diabetes?
3. What are the treatment strategies used by farmworking women?
4. How do farmworking women label and make meaning of their experience with type II diabetes?

In order to get a clear understanding of Mexican American farmworking women affected by type II diabetes this chapter provides an overview of diabetes and its impact on the Mexican American community, including the living conditions of Mexican American farmworking women. This study investigates, both Mexico born (first generation) and U.S. born (second generation) farmworking women and includes a section on culture and diabetes. Sampling procedures for each of these sub-groups will be discussed in the methods section of this dissertation proposal. In addition, there are distinctions between the lifestyles of migrant and seasonal farmworkers; they are generally used to collectively (Farmworker Health Services, 2003). In this study, the term farmworker refers to both migrant and seasonal workers.

Statement of the Problem

Diabetes is a disease in which the body cannot regulate the amount of sugar (glucose) in the blood. There are several types of diabetes. Type I diabetes is a condition in which the body stops producing insulin or does not produce enough insulin to regulate blood glucose. Type II diabetes is a condition in which the body is partially or completely unable to use insulin. Classic symptoms of diabetes includes, frequent urination, excessive thirst, extreme hunger, unusual weight loss, increased fatigue, irritability and blurry vision. To overcome this resistance, the body secretes more and more insulin, which can result in prolonged high blood sugar levels. High blood sugar (glucose) levels damage the retina, kidneys, nervous system and can lead to stroke and circulation problems in the arms and legs (Emedicine, 2003). Warning signs of nerve damage include numbness, sharp pain or tingling feeling, sores on the feet, muscle weakness, and burning feet.

Diabetes is a major public health problem in the United States (U.S.), and a dangerous disease that can lead to serious long-term complications such as heart disease,

peripheral vascular disease, neuropathy (nerve damage), retinopathy (retina damage), and renal disease (Hunt, Arar, & Larame, 1998; McLeod, 2002). Left uncontrolled, type II diabetes can lead to blindness, heart failure, kidney failure, and low extremity amputations (Hunt, Arar & Larame, 1998). Diabetes is associated with severe morbidity and premature death and affects U.S. Hispanics disproportionately (Center for Disease Control, 2002). Hispanics suffer from increased prevalence, a greater number of risk factors, and more severe complications. Furthermore, the population growth of the Hispanic population places this group at particularly high risk (National Institute of Diabetes and Digestive and Kidney Disease, 2004).

Epidemiologic studies show that the prevalence of diabetes among Hispanics is two to five times higher than that of non-Hispanic persons (Carter, Pugh & Monterrosa, 1996; Centers for Disease Control, 2003). On average, Hispanics are 1.9 times more likely to have diabetes than non-Hispanic whites. In addition, diabetes is twice as common in Mexican American adults as in non-Hispanic whites (Center for Disease Control, 2002). In 2000, two million Hispanics were diagnosed with diabetes, and of the 30 million Hispanics in the U.S., more than 10 percent have diabetes. However, estimates suggest that an additional one-third of Hispanic are unaware they have the disease (National Institute of Diabetes and Digestive and Kidney Disease, 2004). This challenge is further magnified by the fact that Hispanics already constitute the largest minority group in the U.S., which suggests the potential of reaching epidemic proportions. By the year 2050, Hispanics will number 97 million and constitute almost 25 percent of the U.S. population (Census Data, 2000; National Institute of Diabetes and Digestive Kidney Disease, 2004). Current epidemiological data suggest that the incidence of Type II Diabetes will continue to escalate in the Hispanic community (Zonszien, 1993 in Rivera-Adams, 2003).

Diabetes affects more women than men, and it is unique to women because in the case of pregnant women, diabetes can affect the health of both mother and unborn child. Among Hispanic women, diabetes is especially problematic since they are among the most medically underserved populations in the United States (Oomen, Owen & Suggs, 1999). The Center for Disease Control (2003) recently reported that 8.1 million women in the U.S. have diabetes, and 90 percent of all women with diabetes have type II diabetes The incidence of type II diabetes is marked for Mexican American women between the ages of 25 and 34 and for Mexican American women with a maternal history of type II diabetes (Haffner, Hazuda, Mitchell, et al., 1991 in Alcozer, 1998). Theoretically, with the current population growth of Mexican Americans, the number of cases of type II diabetes may potentially increase by 30 percent.

The prevalence rates of type II diabetes for Mexican American women in poverty is even higher (Alcozer, 1998). Research suggests that one group that may be disproportionately at risk as a result of type II diabetes is the Mexican American female farmworking population, due in large part to their to their extreme levels of poverty as well as to the hazardous occupational nature of farmworking. Mexican Americans in California and Texas, the two largest employers of farmworkers in the U.S., have the highest prevalence of diabetes, and diabetes is the fourth leading cause of death in Texas (Diabetes Research Center, 2003). Diabetes is acknowledged as a leading chronic health condition among farmworkers served by migrant community centers (Migrant Clinicians Network, 2004), and yet its prevalence within the female farmworker segment of the farm working community is, however, much less understood. Although data specific to Mexican American farmworking women who have diabetes is not available, the information available for Mexican American women more generally provides a clear indication of the trajectory of diabetes among this farmworker population. It is likely that

farmworking women experience increased risk factors, higher rates of disease complications, and decreased life expectancy due to farmworker's lack of health insurance and low socioeconomic status.

Significance of Study

Due to the dearth of research regarding type II diabetes in Mexican American farmworking women, social work professionals and health care providers have little understanding about what Mexican American female farmworkers know and understand about type II diabetes. Current knowledge about Mexican Americans and type II diabetes has been based primarily on survey methods of research (Smart & Smart, 1991), and on the theoretical orientations of traditional medical models. Relying on survey methods can be problematic for several reasons. For example, Skaff, Chesla, de los Santos-Mycer & Fisher (2002) reported that Mexican American participants were uncomfortable completing surveys. Part of this discomfort may be explained by educational differences and language barriers. Survey materials may be difficult to comprehend even though they have been designed at a low reading level (Rosal, Going, Carbone & Cortes, 2004). On the other hand, theoretical medical models focus on one treatment for all, limiting attention to cultural understandings of diabetes etiology and treatment (Reimann, Talavera, Salmon, Nunez & Velasquez, 2004).

Prior research shows that Mexican American women have unique ideas about how to treat diabetes such as the drinking of seaweed tea, and bean broth, intermittent dieting, and medication rationing (Lopez, 2004; M.L. Alaniz, personal communication, October 7, 2004). Other research suggests that Mexican American women experience and think about diseases as well as the physicians who treat them differently from other population subgroups (Coronado, Thompson & Godina, 2004). Holland and Courtney (1998) report that many Mexican Americans do not think of their cultural health beliefs

and practices as "folk" medicine. For example, rather then asking patients if they use folk medicine, practitioners can ask how *susto* or *mal de ojo* (evil eye) is treated, which demonstrates cultural understanding and creates a positive partnership between patients and practitioners. Given the current status of research on diabetes treatment and prevention, services offered by social work professionals and health care providers likely do not match or address the expectations and experiences of diabetic farmworking women.

Without understanding the etiology of diabetes for farmworking women, treatment strategies will continue to be based on theoretical orientations and traditional medical models that may potentially increase their risk and diabetic complications. Incongruent expectations between service providers may foster misunderstandings, and mistrust and a lack of treatment follow through. As a result, risk prevention and treatment efforts may be impeded with serious consequences (Institute of Medicine, 2002 in Reimann, et al., 2004). According to the research, these negative consequences may include: (a) diagnostic errors due to language barriers as well as ignorance of cultural-specific symptoms and epidemiology, (b) failure to account for differing responses to medications, (c) lack of knowledge about traditional remedies that can lead to harmful interactions of prescribed medications, and (d) failure to explore the perceptions and meaning farmworking women have about diabetes may result in underutilization of services (Delgado & Delgado, 1982; Marsh & Hentges, 1988; Lavizzo-Mourey & Mackenzie, 1996). Such findings highlight the need to first understand how Mexican American farmworking women perceive, understand and make meaning of diabetes before we can integrate culture and ethnicity into diabetes control efforts (Reinmann, et al., 2004).

The Living Conditions of Mexican American Farmworking Women

It is estimated that more than five million migrant and seasonal farmworkers reside and work in the U.S. (Magana & Hovey, 2003; Villarejo, 2003). Farmwork is considered one of the most hazardous occupations (Strong & Maralani, 1999; Thompson & Wiggins, 2002; Villarejo, 2003). Farmworkers harvest and produce much of the nation's cotton, fruits, nuts and vegetable crops. Of these farmworkers, it is estimated that 36 percent are women (Rodriguez, Toller & Dowling, 2003). Despite the high percentage of farmworking women, empirical studies focusing on this category of farmworkers are disproportionately lacking. The scant information known about farmworking women is derived from large studies focusing on farmworkers more generally, in which farmworking women have been minimally represented (Mines, Mullenax & Saca, 2001; Rodriguez, Toller & Dowling, 2003). As a result, basic demographic information is lacking and even less information is available about how this segment of the farmworking population perceives and makes meaning of type II diabetes mellitus. Based on available data, this section will provide an overview of Mexican American farmworking women, covering housing, income, health care, nutrition, health status and literacy.

Farmworkers perform several agriculturally related duties including, but not limited to chopping weeds, thinning cotton and corn fields, pruning grape vines, picking vegetables, sorting and packaging fruits in the field, mixing and spraying pesticides, digging ditches, and irrigating crops (Leeper-Buss, 1996; Rothenberg, 1998). For an elite group of farmworkers these duties also include driving heavy equipment such as tractors and cotton harvesting machines. Driving heavy equipment is considered elite because this position usually pays a higher wage.

The hazardous occupational nature of farmwork places farmworkers at high risk for health problems. Farmwork is very labor intensive and typically requires working

long hours in hot climates with high humidity levels. For instance, it is not uncommon for temperatures to reach 105 degrees in California, and humidity levels to exceed 90 percent in Texas during the harvest season.

During the workday farmworkers may be unable to safely store their own food or eat at regular times. Workers must finish the row they are thinning or harvesting before they can eat lunch. Food is often stored in cars, in lunch sacks, or shaded areas in an attempt to keep meals from spoiling in the hot sun. For a diabetic woman who must eat at regular intervals, take medication or regularly test blood glucose levels, these working conditions can lead to low blood sugar levels, which cause side effects that include headache, dizziness, poor concentration, hand tremors, sweating, and fainting (Ethnomedicine, 2003).

Water for drinking and washing is not readily available. Often water is located at the end of each row, or it is too far away from the fields making it difficult for workers to hydrate themselves. Without adequate hydration, these workers are in danger of heat exhaustion or even heat stroke. In order to overcome this problem farmworkers harvesting tomatoes for example squeeze open tomatoes and "drink" the juice. They also "wash" their hands in tomato juice, exposing them to pesticides. These conditions lead to poor hydration among farmworkers and further compromise the health of diabetic workers.

Portable restroom facilities are typically located at either end of a field, and often there are only two facilities for the whole field. Depending on the acreage, there may be as many as 50 workers using these facilities. Farmworking women must endure the need to urinate until they are at the end of the row. Delaying urination for long periods of time, and the lack of adequate water for drinking and cleansing can lead to urinary tract infections that may be difficult to treat in the diabetic (MedlinePlus, 2005).

Farmworking women are given no preference and are expected to produce the same amount of work as men. They walk along soft, uneven furrows thinning, planting or harvesting crops. These furrows often extend one mile or more in length. As a result, "Hot spots" or tender areas form on their feet. For diabetic farmworking women, hot spots could be the beginning of complications leading to infection and even amputations.

Farmworking women compromise their health by working in harsh climates, risking potential heat exhaustion, heat stroke, respiratory infections and pesticide poisoning (Bade, 1999; Das, Steege, Baron, Beckman & Harrison, 2001; Hansen & Donohoe, 2003; Reeves & Rosas, 2003). In addition, most farmworking women do not receive sick, vacation, or holiday pay or retirement plans for their labor (Farmworker Health Services, 2003). The loss of a day's pay could equal the loss or rationing of several days' worth of meals or medication. Eating regular meals and taking medication as prescribed are essential components for maintaining healthy blood glucose levels. Rationing meals and medication creates the potential for uncontrolled blood glucose levels, which can lead to coma and even death (Ethnomedicine, 2003).

Housing

Many of farmworkers live in rural and often isolated areas. The lack of adequate, available, and affordable housing historically has been a serious problem for farmworkers and their families. It is estimated that more than 800,000 farmworkers lack adequate shelter (Rodriguez, Toller & Downing, 2003). Frequently, farmworkers live in substandard, overcrowded housing lacking proper ventilation, and adequate kitchen and bathroom facilities (Martin & Taylor, 1998; Bade, 1999; Schacht, 1999). A study conducted by Sherman and collaborators (1997) found that a significant portion of farmworkers living in substandard, unofficial housing such as shacks, trailers and tents. For example, farmworkers living in "colonias" in South Texas were found living in three-

room apartments constructed out of press-wood (M.L. Alaniz, personal communication, October 7, 2004). In Texas, the term "colonia" is applied to subdivisions in unincorporated areas near the U.S.-Mexico border that have inadequate water and wastewater infrastructures (LBJ School Record Colonias, 2005). These housing conditions are often unsanitary and unhealthy, and create undue stress that affects the health status of these workers. Living and working in substandard environments places farmworking women at greater risk for developing chronic disease, such as diabetes (Bechtel, Shepherd & Rogers, 1995; Farmworker Health Services, 2003).

Income

Farmworkers, in general, are one of the most impoverished and underserved populations in the U. S. (Hansen & Donohoe, 2003; Magana & Hovey, 2003; Strong & Maralani, 1999). Though women do nearly every kind of farm labor, they routinely earn less than men for doing the same work (Wiggins, 2003). Farmworking women earn approximately $5,775 annually, which is 23 percent less than the annual earnings of their male counterparts (Committee on Women and Agriculture, 1993; Rodriguez, Toller & Dowling, 2003). Farmworking families' annual earnings average $10,000, which are far below the Federal Poverty Guidelines (Immigration Law & Policy, 2004). Current federal poverty guidelines set income for one person at $8,980 annually; for a family of five the income is set at $21,540 (U.S. Department of Health and Human Services, 2003). Despite very low income, farmworkers who are not American citizens are not eligible for many financial, health or nutrition benefits (American Civil Liberties Union, 1998). This affects the majority of farmworkers, given that it is estimated that 90 percent are immigrants and about half are undocumented (Villarejo, 2003)

Health Care

Health care benefits are virtually non-existent in the farmworker industry (Bade, 1999; Mines, Mullenax & Saca, 2001; Rodriguez, Toller & Dowling, 2003). Ninety-five percent of farmworkers in the U.S. do not have health care insurance (Villarejo, 2003; Lopez, 2001; A. Alvarado, PhD, personal communication, March 11, 2005). Lacking adequate income and health care insurance, most farmworking women are unable to afford the cost of an office visit to see a doctor. As a result, seeking medical attention is often seen as the last option for these women. For example, a co-pay of $10.00 for farmworking women with annual earnings of $5,775 is the equivalent of a $57.00 co-pay for a family of average income (Rodriguez, Toller & Dowling, 2003). As such, by the time farmworking women seek medical advice their illness has often progressed to the latter, more severe stages of type II diabetes.

For diabetic farmworking women, the decision to purchase medications can mean forgoing buying food for the family because medication costs may exceed the cost of groceries for one week. For example, a small box of glucometer strips can cost as much as $43.00 (Rivera-Adamas, 2003). It is likely that these women "ration" their medication and diabetic supplies. Farmworking women may take their medications every other day instead of daily, and many may check their blood glucose levels only when feeling dizzy or lightheaded (Lopez, 2004; M.L. Alaniz, personal communication, October 7, 2004).

Economic considerations are, therefore, a central and undeniable concern for farmworking women, dictating to a great extent the self-care choices these women must make (Hunt, Arar & Larame, 1998). A single medical emergency can easily place a family into a catastrophic economic position (Mines, Mullenax & Saca, 2001). However, the decision to obtain medical care is not only affected by economic considerations. Research shows that Mexican-American women tend to place family needs above

personal needs, and are more likely to forgo purchasing medication (Rivera-Adams, 2003).

Nutrition

Diabetes is exacerbated by poor nutrition (Bechtel, et al., 1995). Several studies have found dietary intakes of farmworking women and children to be below recommended dietary allowances for calories, protein, and iron (Watkins, Larson, Harlan & Young, 1990; Shotland, 1989). Dietary inadequacies can include deficiencies in vitamin A, iron and calcium, and vitamin C (Shotland, 1989). Farmworker Health (2003) claims that farmworkers have a higher incidence of malnutrition and nutrition related problems than any sub-population in the country.

In order for diabetics to achieve healthy blood glucose levels they must make severe dietary changes. This requires not only purchasing healthy, nutritious foods, but also changing how food is prepared. With budgets already stretched to their limits, farmworking women are unable to purchase special foods necessary for controlling their diabetes. Additionally, as Shotland (1989) points out, maintaining traditional food habits appear to be very important to farmworking women. Traditional foods are a way to keep culture alive and represent a family history that has been passed from one generation to another. Cooking and sharing traditional foods can be seen as a method by which families stay connected to the past, present and future. As such, farmworking women may not accept a change in their traditional diet to accommodate diabetes. However, due to the paucity of research in this area such a conclusion cannot yet be proven.

Health Status

When compared to other subpopulations, the health status of farmworkers in the U.S. is among the worst of the nation (Bechtel, et al., 1995; Farmworker Health, 2003). Inadequate and poor nutrition combined with overcrowded living conditions and

strenuous, stressful working conditions further decrease the health status of these workers; adding to the incidence of diabetes in farmworking women. Major health issues of this population include (a) increased risk of cancer, (b) leukemia, (c) birth defects, (d) hypertension, (e) occupational injury, and (f) chronic illness (Betchel et al., 1995; Farmworker Health, 2003; Mines, Mullenax & Saca, 2001). Furthermore, farmworkers have an average life expectancy of 49 years compared to the national average of 78 years (Ward, 1999; Hansen & Donohoe, 2003; Corpus Christi Caller Times, 2005).

Literacy

Health literacy is a measure of patients' ability to read, comprehend, and act on medical instructions. Many believe that when a patient does not speak the native language of his or her health care provider, multiple adverse effects on the patient's health may occur, such as a patient's inability to comprehend the education and treatment plan (Timmins, 2002). Since farmworkers are typically Spanish speaking and have less than three years of formal education, it is possible that literacy is limited even in their native language and is especially compromised in English (Das, Steege, Barron, Beckman & Harrison, 2001, Alvarado & Luna, 2001, Metha, Gabbard, Bararat, Lewis, Carol & Mines, 2000; Lopez, 2001).

Patients with poor health literacy levels have difficulties that range from reading labels on a pill bottle and interpreting blood sugar levels or dosing schedules to comprehending appointment slips, educational brochures, or informed consent documents (Schillinger et al., 2002). In addition, these patients have difficulty naming their medications. In a recent pilot study focusing on farmworking women and type II diabetes, Lopez (2004) interviewed seven farmworking women and found that *100 percent* of participants in this study taking diabetic medication *could not* name their medication in either Spanish or English. An inability to name medications places patients

at risk for mistakenly taking toxic levels of medications, because they do not know how much medication or how often to take medication, which can lead to multiple adverse side effects on the patient's health (Timmins, 2002).

Patients with poor health literacy not only have limitations in reading but may also have difficulties processing oral communication and conceptualizing in a language different from their native language (Schillinger, et al., 2002). A patient's inability to comprehend the education and treatment plan can lead to poor patient satisfaction, poor compliance, and under utilization of services (Timmins, 2002) as well as increased risk of diabetic complications. Several participants in Lopez's pilot study (2004) understood the need to keep track of their blood glucose levels however; beyond that, most participants in this study did not know what action was required when they experienced high levels of blood glucose for days or even weeks at a time.

Culture and Diabetes

Cultural anthropology defines culture as shared information and knowledge (D'Andrade, 1984). Immigrant farmworkers very often bring with them a cultural system of health and healing that is different from the more accepted and recognized western medical model. According to Kleinman (1980), the medical model views disease as a dysfunction or structural abnormality in biological processes. Such models strive to be generally applicable, limiting attention to cultural understanding of diabetes etiology and treatment (Reimann, Talavera, Salmon, Nunez & Valasquez, 2004). Nevertheless, cultural beliefs and practices based on traditional remedies remain a strong part of the medical "philosophies" of immigrant farmworkers (Thompson & Wiggins, 2002). These beliefs and practices also play a major role in determining how farmworkers feel about health and illness (Anderson, Wiggins, Rajwani, Holbrook & Blue, 1995) and influence treatment decisions (Garro, 2000).

The cultural construction of illness is based on the meaning of illness, the interpretation of symptoms, and an understanding of diagnosis through cultural understandings of illness, experiences of family members and social networks of farmworkers. In order to better understand patients' illness orientations, it is important to examine the relationship between the cultural construction of illness and symptoms (Hunt, Valenzuela & Pugh, 1998; Luna, 2003).

It is likely that many farmworking women have lived a lifetime without ever having had access to health care insurance or preventative health care practices (Mines, Mullenax & Saca, 2001). The Bi-National Farmworker Health Survey conducted by Mines and collaborators (2001), which focused on the heath of Mexican farmworkers that migrate to the U.S. for employment, found that 50 percent of farmworker households reported not having any insurance, and 58 percent of individual respondents were uninsured.

Lacking experience and a clear conceptual understanding of preventative medical practices makes it difficult to comprehend illness absent of symptoms. Media campaigns focus on physicians recommended disease prevention through regular annual check-ups (American Diabetes Association, 2005; National Center for Chronic Disease Prevention and Health Promotion, 2005). Therefore, women with medical insurance who can afford to visit doctors regularly understand the conceptual basis underlying preventative health care practices. For example, most insured women understand that preventative practices save lives through early detection. As such, insured women comprehend the notion that one can be ill without the signal of symptoms. Such understanding affords these women the opportunity to "catch" illnesses such as diabetes before they reach the latter, more severe, stages of disease. However, this is not the case for farmworking women. For example, in their study on cancer literacy among Hispanic farmworker women, Meade,

Calvo and Cuthbertson (2002) reported that farmworking women were unsure of reasons for early detection of cancer.

When illness strikes, an individual generally looks towards their understanding of illness for meaningful treatment strategies to reduce symptom. Symptoms signal a change in body functioning and often provide the impetus for health-related action (Anderson, et al., 1995; O'Neill & Morrow, 2001). When signs and symptoms are absent, research suggests that farmworkers do not believe illness is present, which affects treatment decisions (Betchel, et al., 1995). Because farmworkers do not have health care insurance and do not understand sickness absent of symptoms, they enter the health care system later and in advanced stages of illness (O'Neill & Morrow, 2001). Within this population, understanding the need for prolonged treatment when no signs or symptoms are apparent is further aggravated by language and cultural barriers (Betchel, et al., 1995).

Ethno-specific Illness

According to the Diagnostic and Statistic Manual of Mental Disorders (1997), Ethno-specific illness is a health outcome that is self identified within the belief system of a specific ethnic group (Thompson & Wiggins, 2002; Mines, Mullenax, & Saca, 2001). Many farmworkers interpret sickness through interpretation of ethno-specific illnesses. Without the benefit of preventative medicine, farmworkers are guided towards treatment of illness through this interpretation.

These ethno-specific illnesses are thought to be the explanatory models that are used by an individual and important others to explain the causes of illness and to understand an illness episode (Diagnostic and Statistic Manual, 1997; Lowe & Freeman, 2002). Ethno-specific illnesses are primarily stress-and trauma-based and serve as the foundational understanding for other physical or mental illnesses. *Susto* is one of the most common ethno-specific illnesses within the Mexican American culture. *Susto*, or fright,

includes symptoms of restlessness, loss of appetite, fever, vomiting, or diarrhea. It is thought of as having a single-event cause, such as witnessing a bad accident (Rodriguez, Toller & Dowling, 2003; Diagnostic and Statistic Manual, 1997) or experiencing intense emotions. These intense emotions can be positive or negative, happy or sad. For example, experiencing the death of a child can cause *susto*, as well as can experiencing the gift of a new home.

However, ethno-specific illnesses are not widely recognized by the U.S. western medical community (Mines, Mullenax & Saca, 2003; Rodriguez, Toller & Dowling, 2003). Such beliefs are often considered to be misconceptions and superstitions that are obstacles for proper adherence of medical recommendations (de Keijzer, 1992). Individual patient knowledge is evaluated by comparing to a "correct" western medical model of disease (Daniulaitye, 2004), which is often incongruent with the health beliefs of farmworking women.

In sum, cultural beliefs about diabetes likely play a major role in determining how farmworking women feel about illness and health (Anderson, Wigging, Rawani, Holbrook & Blue, 1995) and influence how these women understand illness, symptoms, and causes. Thus, the failure to recognize ethno-specific illnesses on the part of health and social service professionals can result in farmworkers failing to recognize early symptoms of diabetes or from effectively using current conventional forms of intervention.

Relevance to Social Work

For many decades, it has been widely recognized by agencies providing services to farmworkers that this population requires special attention from the health community (Luna, 2003; Villarejo, 2003), social services, and the social work profession. Their needs require a holistic approach. A holistic approach can be defined as the incorporation

of cultural beliefs, values and experiences, and the inclusion of family, extended family and community networks that are involved in the health care decision making process. Similarly, client goals and needs should suggest appropriate interventions that incorporate such systems (Hepworth, Rooney & Larsen, 1997). The incorporation of a holistic system of care is consistent with social work values in which treatment begins "where the patient is" and the development of meaningful treatment strategies is based on client needs. This study informs a holistic intervention for women with diabetes by expanding our understanding of how farmworking women conceptualize the basic fundamentals of diabetes, such as definitions of high blood glucose, heredity and the physiological changes that occur as a result of diabetes.

Chapter Two: Literature Review

The goal of this literature review is to examine the lived experiences of Mexican American farmworking women with type II diabetes. This chapter has been organized to present literature on beliefs about diabetes among Mexican Americans and the larger Hispanic population in comparison to non-Hispanic populations. The issues that will be reviewed include beliefs about diabetes, diabetes causality, and treatment strategies. Literature on Mexican American's explanatory models of illness will also be presented.

Studies on Beliefs and Treatment Behaviors

Beliefs about Diabetes

Beliefs about diabetes influence how diabetic women conceptualize, accept and incorporate treatment strategies into cultural practices.

A qualitative study conducted by Weller, Baer, Pachter, Trotter, Glazer, de Alba Garcia, & Klein (1999) explored beliefs about diabetes and assessed the heterogeneity of beliefs across groups among Latinos in four communities: Hartford, Connecticut; Edinburg, Texas; Guadalajara, Mexico; and rural Guatemala. Participants in this study were primarily women with different levels of acculturation, educational and location of residence (urban/rural). A structured questionnaire was given to 130 participants and focused on causes, symptoms and treatment of diabetes. Results indicate that all sites shared a core description of causality. Participants believed diabetes was caused by heredity, genetics, lack of insulin, uncontrolled sugar levels, eating too much sugar, and poor diet. The Mexican and Guatemalan sample identified *Susto* as the cause of diabetes. However, diabetic symptoms were found to be generally in agreement with biomedical diabetic symptom definitions. Participants in this study believed diabetes was best treated by a physician and that oral medication was helpful in processing blood sugar. Results of

this study found no differences in beliefs by age or gender. Results also indicate that beliefs about diabetes were consistent with biomedical beliefs. Finally, beliefs about diabetes did not differ by having diabetes, knowing someone with diabetes, or having a family member with diabetes.

Similarly, a qualitative study conducted by Valenzuela, Mata, Mata, Gabali, Gaona, Thom & LeBarron, (2003) explored knowledge and beliefs about type II diabetes among Mexicans in a small rural area of Mexico. A sample of 29 women and 8 men participated in structured interviews. Knowledge was defined as concepts consistent with American Diabetes Association (ADA) recommendations. Ideas that deviated from ADA recommendations were categorized as beliefs. Participants were asked open-ended questions about diabetes and strategies for controlling high blood glucose. A blood glucose screening was also incorporated into this study. Participant's blood glucose levels were taken one time during the course of the study using a glucometer. Results of this study show that causal explanation of type II diabetes among participants was largely based on non-scientific beliefs. Specifically, participants cited *Susto* as the cause of diabetes. The majority of the sample reported intermittent and infrequent use of prescribed medications and most preferred home remedies as glucose management strategies. Almost half the sample demonstrated minimal acknowledgement of diet as a factor in maintaining glucose control. Exercise was rarely reported among participants. The lack of financial resources for testing supplies and medications were significant barriers to glucose management, which the authors' state may be the reason participants prefer low cost and easily available home remedies. Participants reported family as the most important source of social support and expressed concern about the financial burden diabetes presents to their family. Results of blood glucose screening revel that

participants had very high fasting and non-fasting blood glucose levels at 216 mg/dL and 311 mg/dL respectively.

Coronado, Thompson, Tejeda & Godina (2004) conducted a qualitative study in a rural agricultural area of Washington State. Forty-two men and women participated in focus groups and data from these groups was used to characterize perceptions about beliefs, causes, and treatment strategies among Mexican Americans. Participants defined diabetes as a serious, life-threatening illness that "kills you little by little." Others compared diabetes to HIV or cancer. Participants identified genetic and environmental risk factors as causes of diabetes. Others viewed *susto* (fright) as the cause of diabetes. Participants commonly cited diet, exercise, and oral medication as treatment for diabetes. Others cited the combination of traditional treatment and western medical strategies as effective treatment. Traditional remedies commonly used were *nopal* (cactus), sabila (aloe vera), *espina de pochete* (silk cotton tree), *chaya* (tree spinach), *arnica* (arnica), and *agua de violeta* (violet water). Findings from this study support the notion that biomedical system and cultural beliefs influence perceptions about diabetes. Further, the authors suggest that intervention programs should acknowledge and reinforce aspects of both biomedical and folk beliefs to improve adherence with health recommendations.

Diabetes Causality

Beliefs about diabetes are related to how individuals respond to disease and can provide explanations about illness perceptions. Mercado-Martinez & Ramos-Herrera (2002) conducted a qualitative study in Guadalajara, Mexico to examine layperson's perceptions of diabetes causality. In this study 20 participants (10 women and 10 men) were interviewed using an open-ended format. Results indicate that participants described diabetes in a variety of ways. The most common cause of diabetes sited was the combination of economic, social and relational factors that produce fright. A fright was

described as an accident, fear of amputation and death. Anger and rage were reported as contributing factors to diabetes causality. Participants reported lines of causality that contained several elements. For example, viewing an accident involving a family member or engaging in social activity where conflict occurs causes fright, which in turn causes diabetes. Results also indicate gender differences in beliefs of diabetes causality. Women emphasized psychosocial factors and domestic problems as the origin of diabetes, whereas men emphasized employment and rage as the origin of diabetes.

Building on this causal theme, Hunt, Valenzuela & Pugh (1998) conducted a qualitative study in South Texas with Mexican-Americans with type II diabetes. This study focused on causal stories and treatment behaviors. Open-ended interviews were conducted with 49 participants and addressed concepts of experiences managing diabetes and self-care behaviors. Results indicate that the primary cause of diabetes was attributed to heredity and diet by 93% of participants followed by 43% of participants who attributed lifestyle as a cause and 33% who attributed emotional trauma as a cause and finally 20% attributed physical disorder/trauma as a cause of diabetes. In addition, 45% of participants cited events as causes of diabetes. Causes of diabetes were grouped into two categories; (a) behaviors and (b) events. Behaviors refer to things the patient has done or failed to do. Events refer to things that happened to the participant. Results also indicate that participants who reported behaviors (diet, lifestyle) as having caused diabetes were more likely to be involved in their diabetes treatment than those reporting events as having caused diabetes. However; participants who were active in their diabetes treatment were no more likely to have good glucose control than those that did not participate in their treatment. Finally, results indicate that the core of participant's causal understanding of diabetes is based in personally relevant events and behaviors rather than emphasizing biomedical-based constructs.

Treatment Strategy

Not only are personal beliefs about diabetes causality a factor in participation in diabetes treatment, home remedies have also been reported to influence diabetes treatment. Home remedies for type II diabetes was the focus of a qualitative study conducted by Poss., Jezewski & Stuart (2003) in El Paso, Texas. In this study 22 Mexican-American participants were interviewed using an open-ended format to elicit participant's beliefs about the appropriate treatment for diabetes. Results indicate participants in this study combine traditional herbal remedies with western medicine. The most common remedies purchased in Mexico are Diabetil Tea, Diabe Cure and Te Malabar (Malabar tea). The most common home remedies used by participants were *nopal* (cactus), and *sabila* (aloe vera). Results also indicate that most participants had an elementary understanding of how diabetic medication worked on the body and some had advanced understanding about how diabetic medication assists the pancreas to produce more insulin. However, most participants did not inform their physicians that they were taking herbal home remedies because they feared being scolded.

Similar to Poss and collaborators (2003) Hunt, Arar & Akana (2000) conducted a qualitative study of low income Mexican-Americans focusing on the use alternative treatment for diabetes and prayer. Forty-three participants from San Antonio and Laredo were interviewed using an interview guide of standardized questions. Results indicated that 84% of participants reported they had heard of using herbs as a possible treatment for diabetes; however, most participants reported minimal use of herbs. The most common herbs cited by participants were *nopal* (cactus), *sabila* (aloe vera), and *nispero* (loquat or Chinese plumb). Only 9% of participants reported current use of herbs and a majority of participants were skeptical about the value of using herbs for treatment of diabetes. Results also indicate religion as a factor in treating diabetes. Seventy-seven percent of

participants reported they thought prayer helped their diabetes by reducing stress. Participants viewed medical treatment as a mechanism through which God could heal them of diabetes. Participants in this study did not report competition between alternative and conventional treatment. Finally, results indicate that participants may give priority to biomedical treatment strategies over alternative strategies.

These studies highlight the importance beliefs and culture play in the conceptualization of diabetes and decisions about health care among Mexican Americans. These studies also show that regardless of the level of understanding of diabetes (elementary or sophisticated) most participants cited *susto* (fright), a culturally bound syndrome as the cause of diabetes. In addition, across a majority of the studies reviewed were culturally based, that is participants used traditional remedies as treatment for diabetes. The most common of these treatments is the use of *nopal* (cactus). These results punctuate the influential nature these factors play in health care decisions related to diabetes among this Mexican Americans. Moreover, these results suggest that integration of these factors into standard medical treatment practices can assist Mexican Americans to achieve and maintain safe blood glucose levels.

Studies Using Explanatory Models

Thus far, this literature review has analyzed research studies that focused on beliefs about diabetes, causality and its relationship to treatment behaviors and traditional and home remedies as treatment for diabetes, as well as perceptions of diabetes among non-Hispanics and other populations. Explanatory models are holistic and bring together beliefs about illness, treatment and causality. Explanatory models are ideas and beliefs about an illness that help persons to understand and make sense of an illness within a cultural context (Poss, Jezewski & Stuart, 2003). The following review will analyze

studies based on explanatory models of illness and type II diabetes. Virtually all studies using explanatory models have been on Mexican Americans or Latino populations.

Jezweski & Poss (2002) conducted a qualitative study with the purpose of developing a culturally specific explanatory model of diabetes among Mexican Americans living along the U.S.-Mexico border. Twenty-two participants (18 women/ 4 men) from El Paso, Texas were interviewed using an open-ended interview format. Results indicate that Mexican American's perceptions of diabetes using four constructs: (a) cause, (b) symptoms, (c) treatment, and (d) social significance. A majority of participants described *susto* as the cause of diabetes and believed *susto was* unavoidable. Participants identified and interpreted their symptoms within the western biomedical view of type II diabetes; although participants were unsure about the symptoms of hyperglycemia and hypoglycemia. Participants integrated both biomedical and traditional treatments into their explanatory model of type II diabetes based on diabetes education classes. Diet regulation was believed to be important in diabetes treatment, yet participants reported substantial confusion regarding diet. Many participants believed that eating any amount of fat was acceptable as long as it was not lard. Others believed they could eat candy and limit carbohydrates. Participants also believed they could eat everything as long as it was in small portions. The home remedy most commonly used to treat type II diabetes was *nopal* (cactus) and it was prepared as a tea and a meal. Most participants discussed diabetes with their families and reported family members offering support and reminders about taking care of themselves; although, several participants reported feeling ashamed of having diabetes and as a result did not confide in family members or seek advice or social support.

Building on characterizing explanatory models among Mexican Americans, Luyas (1991) studied low income, Mexican American women's explanatory model of

type II diabetes, and examined how the explanatory model of these women compares with the bio-medical model. The author examined labels and meaning of diabetes, ways of knowing one is sick, attributions to the cause of diabetes and ways of treating diabetes. Participants reported a two-pronged meaning for: (a) diabetes and (b) sugar diabetes. Diabetes referred to amputations, loss of eyesight, and dialysis. Sugar diabetes referred to how sugar accumulated in the blood and was described as eating too much sugar during childhood. Symptoms were the primary method of knowing one was sick. Participants did not have an understanding of how foods are processed in the body and did not understand that starches such as tortillas, bread, and potatoes convert to glucose in the blood. Many participants attempted to "dilute" their blood sugar by drinking sour juices or adding extra salt to counteract the sweet. The cause of diabetes was attributed to the cumulative effects of problems and life circumstances experienced since childhood. Finally, eating "diet food" such as fruits and vegetables were identified as a treatment strategy for controlling high blood sugar levels. However, participants stated they often could not afford such foods and instead used fillers such as rice to bulk rationed beef and pork. By and large, participants included family problems as part of the etiology of diabetes. The author argues for the integration of this domain in treatment planning

Advancing the concept of explanatory models, Alcozer (2000) conducted a secondary data analysis based on her original study on the perceptions and meanings of type II diabetes among Mexican American women. In the original study twenty women were interviewed using an open-ended interview format. Unlike several studies in this review, participants in this study were high school and college graduates, had higher acculturation levels, and average annual earnings of $16,000 to $30,000. Perceptions and meanings of type II diabetes were categorized as defining, getting, having, describing, or taking care of diabetes. Results indicated a two-pronged definition of diabetes: (a)

borderline or glucose intolerant and (b) diabetes. Participants reported that borderline or glucose intolerant meant having sugar in their urine and this not considered to be negative. Participants reported that diabetes meant less sugar in the blood, dialysis and insulin. Participants were fearful of diabetes due to complications that happen. In discussing etiology of diabetes participants also reported a two-pronged definition in getting diabetes: (a) heredity was considered as a major cause of diabetes given family history and (b) eating too many sweets was thought to stress the body's glucose storing system. Participants reported a two-pronged definition of having diabetes: (a) it was described as having high sugar and (b) as a confusing and silent illness. Participants described a diabetic state as having periods of high glucose. Participants reported that glucose is excreted in the urine as a way for the body to maintain a normal glucose levels. Diabetes was considered a confusing and silent illness because participants did not feel ill. How participants describe diabetes was less clear as they linked the definitions of borderline and diabetes to the symptoms of illness. Participants mentioned insulin as complications of diabetes, such as blindness, amputations and kidney failure. Participants reported very little variation between treatment of diabetes and their definitions of borderline and diabetes. They reported diabetes was to be treated with oral medication or insulin. Participants described the meaning of diabetes as a life threat, complications and a shortened life. As is the case in many of the studies analyzed in this review, the biomedical model of diabetes was incongruent to participant's explanatory models, which the author states explains the prevalent confusion regarding care and information received from health care providers.

Non-Hispanic Populations

In order to understand the uniqueness of the Mexican American experience, this section explores the perception of type II diabetes among non-Hispanic populations. A

review of the literature yielded three studies among non-Hispanic whites that focused on perceptions of type II diabetes. One study focused on Taiwanese perceptions about illness and treatment. Another study focused on disease models among Latinos and European Americans. The last study assessed perceptions on Black Americans and white Americans with type II diabetes. This section will provide a detailed review of each study.

A qualitative study conducted by Lai, Lew-Ting & Chiet (2004) focused on perceptions about illness and treatment strategies among Taiwanese participants with type II diabetes. Authors interviewed 22 participants (10 women/ 12 men) using an in-depth interview format. The themes emerging from this study include; (a) dietary management, (b) exercise practice, and (c) pharmaceutical treatment.

Participants in this study agreed diet and exercise were important factors in controlling type II diabetes; however, diet modifications were limited to a reduction of sweets and carbohydrates, and did not include fruits and vegetables. Exercise was considered helpful in managing diabetes; although, participants more strongly believed that vigorous exercise consumed blood glucose and eliminated pharmaceutical toxins through sweat. It is important to note that in Chinese culture the notion of exercise has to do with "survive and move", which means if you want to survive you have to keep moving. Participants also believed that an increase in water consumption would dilute blood glucose, which would be eliminated from the body through urine. Participants in this study were ambivalent about medication. Participants held a positive attitude towards medication, while others were more concerned with side effects, such as kidney damage. For example, participants reported not taking their medications on days when they did not consume sweets. Results from this study indicate that participants integrate both

biomedical practices and cultural beliefs into their perceptions of type II diabetes; although, it is important to note that participants were more in favor of cultural practices.

While Lai and collaborators focused on illness perception and treatment strategy among participants in Taiwan, Chelsa, Skaff, Baratz, Mullan & Fisher (2000) focused on the differences in personal disease models among Latinos and European Americans (EA). Disease models were defined as participant's working knowledge about diabetes, based on contact with providers, diabetes educators and disease management experience. In this qualitative study 76 Latinos and 116 EA were interviewed using open-ended interviews. Participant responses were examined separately and comparisons across ethnic groups were made. Participants were asked questions about perceived cause of diabetes, nature, seriousness course, future course of diabetes and impact on daily life. Results indicate that both Latino and European Americans recognized heredity, weight loss, diet, and stress as causes of diabetes. Results also indicate a three-pronged categorization of disease models: (a) experiential, (b) biomedical, and (c) psychosocial.

An *experiential* disease model refers to descriptions of diabetes in terms of symptoms, such as tender feet, fatigue, or increased irritability; however, the prominent description for diabetes is that one had too much sugar. A *biological* disease model refers to both elementary and sophisticated descriptions of diabetes as having high blood sugar, a pancreatic malfunction, insufficient insulin, or insulin resistance. A *psychosocial* disease model includes biological, psychosocial and social descriptions of diabetes. For example, participants described how job stress or interactions with family and friends might affect the disease process.

In addition, results also indicate variations of disease descriptions by ethnicity. Latinos used an experiential model to describe type II diabetes, while European Americans used a biomedical model. Significant differences in life changes were noted.

Latinos reported changes in fatigue and mood, whereas European Americans reported changes in exercise and spontaneity. In terms of cause, seriousness and treatment efficacy both groups gave similar assessments for these categories. Both Latino and European Americans had future concerns about physical decline; however, Latinos were more concerned with financial worries and concerns that their children would inherit the disease. The effect of diabetes on the daily lives of Latinos and explanatory models differed. Latinos reported troubling symptoms of diabetes, while European Americans reported changes in self-care activities. Concluding, the authors note that Latinos and European Americans do not differ in their assessment of causality, seriousness or treatment efficacy; rather they differ in how they understand the disease process and experience its impact on their daily lives. The authors suggest that taking a broad look at personal models of diabetic patients is critical for the design of research and interventions for diverse populations.

Continuing with differing perceptions of diabetes, Ford, Havstad, Brooks and Tilley (2002) examined the perceptions of diabetes among African Americans and white Americans in an urban health care system in the Midwest using a quantitative research methodology. Forty-five participants with type II diabetes were randomly stratified by race and socioeconomic status (SES). Perceptions were measured using scales from an illness meaning questionnaire assessing impact, loss and stress associated with type II diabetes. Salient themes include: (a) perceptions of diabetes and (b) involves assessing measurement instruments within racial subgroups. No differences in SES were found between Black Americans and white Americans. A majority of Black Americans perceived diabetes as disfiguring, which was defined as amputations, loss of vision, loss of sexuality and loss of youth. Black Americans cited familial experience as evidence. In contrast, white Americans affirmed that diabetes was not disfiguring. Reliability

coefficients in the combined groups, measured by Chronbach's alpha, were well above 0.68 for the Impact, Loss, Stress and Perceptions of Physician Efficacy scales. However, the Loss scale did not fit the white American subgroup, and the Stress and Perceptions of Physician Efficacy scales did not fit the African American subgroup. The authors conclude that perceptions of diabetes may vary by race, even when controlling for SES. Moreover, the authors state that overall measures of reliability may mask the instability of scales within specific study groups.

In sum, the literature suggests that variation in understanding the diabetes disease process may exist among different cultural groups.

Summary and Conclusion

In sum, this literature review has analyzed diabetes research focusing on beliefs, causality, treatment strategies, and explanatory models of illness among Mexican American men and women and other non-Hispanic groups. These studies were conducted in Texas, Mexico, Guatemala, Washington State and Connecticut, primarily in small rural areas; although, several were conducted in urban areas. Education of participants across studies ranged from fifth grade to graduate level. A majority of the participants in the studies were in extreme poverty or slightly above poverty.

A major trend in the literature on Mexican American populations is the emergence of *susto* as a primary cause of diabetes regardless of income and education. This culturally specific illness category emerges regardless of varying levels of education, income, and levels of acculturation, which signifies the important role culture plays in the characterization of diabetes. A second trend, also related to culture, is the overwhelming use of home remedies as treatment for diabetes even among participants who were reported to prefer western biomedical treatment. A considerable amount of confusion about diet emerges across the literature. While a large majority of participants

cited diet as a means for maintaining blood glucose levels, they appeared to have differing interpretations of the diabetic diet itself and the food preparation modifications required to achieve healthy blood glucose levels. Finally, one study reported gender differences in perceptions of diabetes.

These studies focused on perceptions and meanings of type II diabetes. For Mexican Americans these perceptions and meanings are influenced by personal experiences that are consistent with their cultural, economic, social and family context. They are also heavily influenced by the familial experience of diabetes. The major themes concerning causes of illness were *susto* and diet, although there was confusion about nutrition, portions and what foods to eat. Finding from studies on low-income populations and studies on higher income populations showed similar findings. This review strongly suggests that Mexican American's cultural perceptions and meanings of diabetes play a significant role in health care decisions and acceptance of treatment across differing educational and socioeconomic status and level of knowledge about diabetes. The literature also reveals that non-Hispanics view diabetes consistent with the biomedical model. For example they cite heredity and diet as the cause of diabetes and report the importance of exercise in maintaining blood glucose levels.

Significant gaps exist in the literature. Even though diabetes is a major problem recognized in the farmworking community, research concerning Mexican American farmworking women and diabetes has been absent in the literature This is particularly disconcerting as research shows Mexican Americans in poverty and living in rural areas of the United States are disproportionately affected by diabetes. Moreover, statistics show that, on the whole, farmworkers do not have health insurance and underutilize health services. As a result, they are diagnosed during the latter, more severe, stages of diabetes, and have higher amputation and death rates than other groups. Finally, research reports a

life expectancy among farmworkers of 49 years, which can be reduced by an additional five or 10 years if diagnosed with diabetes during midlife.

In conclusion, the research suggests that perceptions about diabetes are influenced by a single belief system based on cultural understandings and acceptance of diabetes. Further, this belief system plays a major role in health care decisions and acceptance of treatment. However, the perceptions and meanings Mexican American farmworking women ascribe to type II diabetes and the role these perceptions have on health care decisions and acceptance of western treatment strategies are unknown. To that end, this dissertation seeks to (a) discover how the belief systems and among farmworking women lead to beliefs about illness and treatment strategies (b) describe the intersection between women's beliefs systems and medical systems and highlight intersecting areas, with an eye towards informing service providers and influencing meaningful diabetes education, and culturally significant treatment strategies.

Chapter 3: Conceptual Framework

The chapter outlines the conceptual framework guiding this study. In an attempt to analyze perceptions and meanings of type II diabetes among Mexican American farmworking women, this study will be based on a phenomenological approach. This qualitative research perspective takes into account cultural beliefs, theories and representations of illness. Qualitative research methods are holistic in nature and seek understanding of lived experiences through an emic perspective, which captures the respondent's point of view. Thus, the phenomenological approach was designed to elicit the respondent's world view (Padgett, 1998). It is based on a model of health beliefs that acknowledges the role of multiple factors and influences on the perceptions and meanings of persons with type II diabetes.

Kleinman's Explanatory Model

Anthropological methods used in the study of illness behavior focus on cognition and belief systems of specific cultures that have often been unnoticed or minimally represented by other approaches. Kleinman's (1980) work in the area of illness meaning is an example of an anthropological approach.

Explanatory models of illness have been utilized by various disciplines such as anthropology and other social sciences as a conceptual foundation for research studies. The primary characteristic of explanatory models is that they stress understanding an illness experience from the subjective culturally-based view of the client (McSweeney, 1990). Anthropological approaches to the study of illness are more holistic and focus on examining belief systems of specific cultures that are often overlooked or

underemphasized by other approaches (Tijerina, 2000). One example of this anthropological approach is Kleinman's longstanding research in the area of illness meanings (Jezewski & Poss, 2002). Kleinman's model has proven to be a useful for over 20 years (Kleinman, 1980, Jezewski & Poss, 2002).

Explanatory models are the notions about an episode of sickness and its treatment, and are tied to specific systems of knowledge and values. They are the personal beliefs people use to recognize, interpret and respond to a particular illness. Explanatory models are formed and utilized to cope with a specific health problem (Kleinman, 1980). They are constructed through interaction with the sociocultural environment, although much of their content is integrated into the beliefs and value systems of an individual in the form of common sense understandings of the body functions (McSweeney, Alan & Mayo, 1997; Schoenberg, Amey & Coward, 1998). Explanatory models may contain explanations for: (a) etiology, (b) onset of symptoms, (c) pathophysiology, (d) course of sickness (severity and type of sick role), and (e) treatment (Kleinman, 1978). Kleinman suggests that explanatory models are held by both patient and health practitioners, with each group having its own version. Kleinman goes on to note that often the explanatory models of the patients and health practitioners are in conflict.

Disease and Illness Distinctions

Kleinman makes clear distinctions between the concepts of *disease* and *illness*. *Disease* refers to the process of interpretation which occurs when patients visit health practitioners of one kind or another. *Disease* is conceptualized as the practitioner's construction of the patient's illness using the terminology and conceptual framework of the western medical health system (Poss & Jezewski, 2002). According to Kleinman

(1978, 1980, 1986) practitioners reconstruct the patients' meaningful experience of illness according to how their particular professions' theoretical orientation classifies the symptoms and illness experience.

On the other hand, *Illness* is first conceptualized in lay society, where the sick person and family draw from paradigms of everyday practical knowledge and culturally approved management strategies that have been transmitted through personal and familial experience, and membership of a cultural system. *Illness* signifies the experience of disease (or perceived disease) and the societal reaction to the disease. According to Kleinman (1978), *Illness* is a way the sick person, his/her family and social network perceive, label, explain, valuate and respond to illness. Kleinman maintains that patients seek not only symptom relief, but also personally and socially meaningful explanations and psychosocial treatments for illness. Kleinman (1980) points out that patients often do not volunteer their explanatory models to health care professionals and may be hesitant to divulge them due to lack of trust or fear of being devalued and shamed. For this reason explanatory models are better elicited by conducting research interviews in the participant's home or in places of comfort.

Illness Meaning

Kleinman (1986) outlines seven types of illness meanings derived from the patient and local culture: (1) overt meanings of symptoms such as pain, deformity, disfigurement, and disability; (2) illness as suffering, involving religious or moral idioms of distress in the patient's culture; (3) meanings involving culturally marked salience of particular symptoms in particular societies; (4) meanings of illness embodied and absorbed through personal and social significance, taking into consideration the

psychological and social distresses that are like to amplify symptoms; (5) meanings related to practitioner's construction of illness within the framework of biomedicine focusing on social use and functions of illness for a particular person in a particular situation at a particular time; (6) meaning through the creation of retrospective narratives which function to relate illness to life history of illness, and make sense of sickness; and (7) meaning derived from the selective illness accounts audited by clinicians and researchers according to their particular interests.

Explanatory models are characterized by vagueness, multiple meanings, frequent changes, and lack of sharp boundaries. They unconsciously formed, tend to change over time and are influenced by environment, ethnicity, individual interpretation, familial illness experience, exposure to western medical practices, and tacit knowledge (Luyas, 1991; McSweeney, 1990). Explanatory models of individuals may very well differ from those of the family or social and community networks. As such, the ongoing experience with a specific illness, particularly a chronic illness, new knowledge, or a significant health event may modify them (McSweeney, Alan & Mayo, 1997). The capacity to take on additional illness meanings indicate that health care professionals of all types can influence explanatory models by teaching meaningful health information to patients, family members and peer groups.

The holistic nature and diversity of explanatory models acknowledge physiological, affective, cognitive, and the phenomenological process of the individual's illness experience (Tijerina, 2000). Perhaps more important is the model's emphasis on ethno-cultural context as the foundation of the illness experience (McSweeney, Allan & Mayo, 1997). Establishing the explanatory models of type II diabetes among Mexican

American farmworking women is a useful framework for collecting and analyzing data that can ultimately provide theoretical models for understanding the meaning of type II diabetes among female farmworkers. Such theoretical models can be used to negotiate meaningful and culturally appropriate treatment strategies. Although the development of treatment strategies is not the goal of this study, gaining a preliminary understanding of the explanatory models conceptualized by Mexican American farmworking women with type II diabetes can provide valuable information toward that goal.

Conclusion

The holistic nature of Kleinman's framework will provide a deeper, richer understanding of the perceptions and meanings farmworking women attach to type II diabetes, which are consistent with the goals of this study. The use of this guiding framework can increase our understanding of the sociocultural factors that create the context for female farmworkers and their experience with type II diabetes. This information can help explain how farmworking women construct explanatory models of illness and helps practitioners gain an understanding of the intersection between farmworking women's explanatory models of illness and standard medical practices. Moreover, understanding the structures and function of explanatory models contributes to the theoretical construction under which practitioners and bio-medicine are guided. The merging of differing disciplines, such as the social work profession and medical profession provides an opportunity for the revision or paradigm shift of the current theoretical medical models guiding health delivery by systematically analyzing the relevant effects of sociocultural determinants on sickness and care (Kleinman, 1980).

Chapter Four: Methodology

This chapter reviews the purpose of the research, the research design, and research questions addressed. It specifies the selection of participants, the data collection instruments and procedures, and data analysis procedure. Finally, limitations of the study design and a summary of a pilot study I conducted as part of this dissertation are discussed.

Purpose of the Research

The purpose of this study was to explore the meanings of type II diabetes among Mexican American farmworking women and to explore the cultural and psychosocial factors influencing the perceptions and meanings farmworking women ascribe to type II diabetes. To achieve these goals, a qualitative research approach was used to explore farmworking women's lived experiences with type II diabetes focusing on four dimensions related to the illness, causes, treatment and phenomenological perceptions linked to their broader experience with type II diabetes.

Research Design

The goal of this qualitative research was to amass a deep understanding of those factors influencing the ascribed perceptions and meanings of type II diabetes among Mexican American farmworking women. The underlying assumption of this study was that a meaningful interpretation of participant's conceptualization of diabetes can best be tapped by (a) understanding their perceptions of the disease, causes, treatment and the dietary recommendation associated with treatment recommendations and (b) meanings ascribed to their lived experiences. Understanding the way in which participant view their broader experiences with diabetes and create meaning from these diverse life experiences can serve as the basis for preliminary development of effective and culturally sensitive and significant treatment strategies for this highly vulnerable and disadvantaged

population. Based on a review of scholarly literature, extending across several disciplines, I arrived at the conclusion that a qualitative study would provide the best opportunity for a holistic understanding of type II diabetes among participants. For this reason, I chose a phenomenological approach to this study, using a semi-structured interview protocol and in-depth interviews as the primary research instrument. A phenomenological study typically refers to naturalistic observations and holistic understandings of cultures or subcultures (Rubin & Babbie, 2001, pp.391; Creswell, 1998, pp.246) and refers to a consideration of all perceived phenomena (Rubin & Babbie, 2001, p.433). A phenomenology provides a flexible methodology for the exploration of lived experiences of type II diabetes among Mexican-American farmworking women.

Research Questions

This qualitative dissertation sought to answer the following questions.

1. How do farmworking women know when they are sick?
2. What beliefs do farmworking women regard as the cause of diabetes?
3. What is the basis for diabetes treatment strategies employed by farmworking women?
4. What meaning is ascribed to their experience of living with type II diabetes?

Selection of Participants

A non-probabilistic sample of 17 Mexico and United States born Mexican American female farmworkers diagnosed with type II diabetes were selected for participation in this study.

Selection criteria required that eligible participants (a) have been diagnosed with type II diabetes for a minimum of 12 months, (b) must be between the ages of 18-65, and (c) have worked a minimum of 24 months as a farmworker. The criterion of time

diagnosed with type II diabetes was based on the assumption that a 12 month period is a sufficient amount of time for individual participants to make meanings of type II diabetes and the impact this disease has on their lives. Because Mexican Americans tend to be diagnosed with diabetes at younger ages (Brown, Garcia, Kouzekanani & Hannis, 2002) the initial desired age criterion was 18-40 years. However, since it is likely that most Mexican American farmworking women are diagnosed at ages exceeding the original criterion, the upper limit of the age range was increased to 65 years. The 24 month is thought to be an ample amount of time for farmworkers to gain a lived experience of farmworking (Metha, Gabbard, Barrat, Lewis, Carrol & Mines, 2002).

Recruitment Site Used

The study population consisted of Mexican-American farmworking women with type II diabetes residing in the Patterson/Westley area in California's Northern San Joaquin Valley. This area was selected due to the high concentration of Mexican-Americans, large farmworker population, and my familiarity with this area of Northern San Joaquin Valley. Also, when compared to California state averages, the Mexican-American population percentage in this area is significantly above state averages (57% and 84% respectively) (California Profile, 2004). A rough estimate of the farmworker population in this county is estimated to be near 40, 000 (California Factoid, 2005).

A local community center served as the primary site for participant recruitment. This site was selected due to: (1) its connection with the farmworking community, (2) the high level of trust farmworkers place in the community center and, (3) the level of trust farmworkers place in the community developer at this site. Due to farmworkers inherent suspicion of strangers (Bechtel, Shepherd & Rogers, 1995; Berman, 2003), selecting a trusted recruitment site was essential to this study and a key component for participant recruitment (McKean-Skaff, Chesla, de los Santos-Mycue & Lawerence, 2002).

Serving primarily Mexican American community members, the community center is a county funded, non-profit organization providing a wide variety of services to members of the community. Services include advocacy, support services, translation, assistance with forms completion, social services, and linkages to businesses and government agencies.

The community developer from the community center is Mexican American, lives in the community and is bilingual. She is trusted by the community, and well informed about the issues facing farmworking women. The use of trusted members of the community is a common technique of qualitative research to gain access and entrance into a community (Creswell, 1998; Rubin & Babbie, 2001). Because of farmworkers' distrust of outsiders, establishing trust as a researcher is a critical element in working with this population (Betchel, 1995; Burman, 2003; Rubin & Babbie, 2000; McKean-Skaff, et al., 2002; Marin & Marin, 1991).

Data Collection Instruments and Procedures

Data were collected at two levels: (1) a basic demographic data was taken using a brief, structured questionnaire and (2) participant's perceptions of type II diabetes were taken by using in-depth interviews and a semi-structured, interview protocol. These instruments were previously developed and tested in a small pilot study as part of this dissertation.

Interview Contact

The community developer was provided an information sheet and briefed about the purpose of the study (see Information Sheet in Appendix A). In general, initial contact with study participants took place at the community center after recruitment flyers had been posted in places farmworkers are known to frequent, such as grocery stores, laundry mats, and Mexican bakeries (see Recruitment Flyer in Appendix B). Interested

participants contacted the community developer by phone or in person to inquire about the study. The community developer provided a brief overview of the study and assured participants that being in the study would not be harmful to them in any way. She arranged introductions in several ways: (a) by scheduling an interview at the community center or (b) providing me with the telephone number of interested participants after she had given participants information about my name and when I would call to schedule an interview.

I arrived at the community center 30 minutes prior to the scheduled interview allowing ample time to be briefed by the community developer about the upcoming interview. When the participants arrived at the center introductions were made and I escorted participants to the interview office at the community center. Depending on the language preference of the particular participant (Spanish or English), I explained the purpose of the study, confidentiality procedures and the role of the participant. Potential participants were assured that their names would not be used in the course of data collection. As part of verbal informed consent participants were given a copy of a brief consent form (see English Version of Consent Form in Appendix C). Finally, participants were informed that upon completion of the interview they would be compensated $20 for their participation.

During the interview, participants were administered a demographic questionnaire used to collect baseline demographic information, such as age, marital status, place of birth, education, income and employment history (see English Version of Demographic Questionnaire in Appendix D). This section of the interview was not recorded; however, notes were taken on the form to highlight key information and observations.

Interview Protocol

A semi-structured interview protocol was used to guide in-depth interviews. These interviews were audio recorded and conducted in the participants preferred language. The interview protocol was based on one overarching question and contained a number of predetermined questions and probes related to the research questions. Protocol questions were based on four categories, including knowledge of illness, causation, treatment strategies and meanings and perceptions of type II diabetes.

The interview protocol had been previously tested in a small pilot study and later several questions and probes were revised. While administering the protocol during my pilot study I found that participants seemed confused by the question "what does diabetes mean to you". As a result, this question was revised to "how do you describe diabetes'. I also found that several probes were similar to leading questions and these questions were subsequently deleted (see Interview Protocol in Appendix E). Finally, given the educational level of participants a conscious effort to simplify the wording of probing question was made so that questions were easily understood by participants.

Interview Procedure

Nine of the 17 interviews were conducted in participant's private homes and the remaining interviews were conducted at the community center. After introductions and engaging in friendly conversation, I explained to participants that the goal of the research as a method to better understand their experiences living with type II diabetes and provided a brief explanation about how answering questions about demographics and diabetes help me to understand their experiences and in turn how their answers could make a difference in improving their diabetes. I explained to participants they had important information that health care providers need to know. Prior to administering the demographic questionnaire I informed participants that they did not have to answer any

question that made them feel uncomfortable. I also explained that I would be taking notes during the interview as part of collecting information and asked if this would be acceptable. All participants agreed. Before audio-recording the interview, I informed participants that they could choose not to have the interview recorded. All participants agreed to the recording. I reminded participants that the interview was expected to take approximately one hour and invited them to use the restroom prior to the interview and I also encouraged them to pause the interview if they later required the lavatory or needed a break.

Field Notes

As previously discussed, notes and observations were taken throughout the interview process to validate and support audio recordings. In addition, I also kept a notebook where I recorded my initial observation and reactions after each interview. Through field notes I consciously examined reactions to the research process. I took copious field notes reflecting on how the interviews went, and how participants responded to me and the interview questions, as well as type of interactions I had with participants. My field notes also included observations about demeanor, manner of dress, linguistics, and types of questions participants asked.

Methods for Verification

Trustworthiness in qualitative studies is the equivalent of reliability and validity in quantitative studies. In qualitative research trustworthiness is the key issue in establishing credibility in a study (Padgett, 1998; Creswell, 1998). Alternate terms such as credibility, transferability and dependability are used to establish the trustworthiness of a qualitative study (Creswell, 1998; Padgett, 1998). This study engaged in three verification procedures: (a) checks on researcher bias, (b) triangulation, and (3) the use of rich, thick descriptions.

Researcher Bias

The role of reflexivity is a central preoccupation in qualitative research (Padget, 1998), and refers to the ability of the researcher to examine her/his personal frame of mind as a result of values, and biases resulting from the experiences with data collection and analysis (Coffey, 1999). The goal is for the researcher to understand his/her impact on the study (Coffey, 1999; Padget, 1998). Family experience with farmwork and maternal experience with diabetes are the primary contributors of my reflexivity. While conducting this dissertation I disclosed to key informants and participants my family history with farmwork and diabetes. This acknowledgement served to facilitate rapport among key informants and participants and embolden farmworking women to participate in the study. In addition, knowledge about my personal experiences appeared to have provided a sense of comfort and trust among participants. However, my experiences may have influenced the way I asked questions, and influenced my interpretations of the data reported. Moreover, my personal experience may have influenced what experiences participants shared because they may have thought that I already understood some of their experience; therefore, it would not be necessary to share them with me. Throughout the data collection process I remained cognizant of potential biases and assumptions through the use of field notes and writings jotted on interview materials.

Triangulation

Triangulation is widely practiced as a valuable means for enhancing rigor in qualitative research (Padgett, 1998). Triangulation enhances verification by making use of multiple and different data sources to provide corroborating evidence that highlights a theme or perspective (Creswell, 1998 p. 202). The most commonly known type of triangulation is triangulation by data source (Padgett, 1998). Using field notes and conducting interviews in participants' homes, verifying some of the experiences

described by participants and drawing on my own personal experiences are the primary methods of triangulation in this study. When data from field notes and interviews are convergent and support each other, confidence in researcher observations and study conclusions are enhanced (Padget, 1998).

Thick Rich Description

To further enhance the trustworthiness and verification of this study all recorded interviews were fully transcribed. Completed transcriptions were analyzed for inconsistencies and misrepresentations. Any inconsistencies or misrepresentations were resolved by re-listening to the section of the tape in question. All audio recorded interviews were stored in a locked file cabinet until the completion of the dissertation, after which they were destroyed. This method of data transcription ensures the accuracy of the translation, and ultimately accurate representation of the results. Rich, thick descriptions of the data (common in qualitative studies) will be conveyed in the results section of the study, highlighting the phenomenon or specific concept based on the participants' own words, and in the participants preferred language.

Data Analysis

Data analysis was preformed in three stages: (1) a general reading of the transcripts, (2) classifying data, and (3) an in-depth interpretive analysis.

Reading Transcripts

The edited transcripts were typed and printed with wide left and right margins. For each transcript, notes were hand written in the margins highlighting key points and potential themes and interpretations. The left hand margin was used to notate potential meanings and connections to themes. The right hand margin was used to highlight potential salient themes and sub-categories of themes. The data analysis process began with a general reading of all transcripts to gain a feel for the overall data. Subsequent

readings were taken to pinpoint significant statements about how farmworking women experience type II diabetes.

Classification of Data

For each of the four areas under study (knowledge of sickness, cause, treatment and meanings) I made a list of significant statements capturing these concepts. Using participant quotes provide examples of the words and images respondents use and a sense of the lives that underlie findings (Weiss, 1994). In order to group these statement and points into meaningful units I created a template. This template format was developed as a result of my data analysis experience with my pilot study transcripts and proved to be an effective tool in the analysis process. Areas under study were listed as column headings and rows listed participant's assigned confidential number. Participant statements corresponding to each area of study were listed in the cell under the appropriate column. Based on this template I created a second template where I followed a similar design with the exception that group statements were listed in the appropriate column. This helped to reduce the data and provided a clear picture of participant expressions and experiences with diabetes. These templates form the basis for uncovering salient themes within each category under study.

Interpretation

During this phase of data analysis the grouped statements were combined into meaning units based on the areas of study. For example, participant's statements about diabetes treatment strategies were grouped into a unit listed as cultural strategies. Based on this unit, participant's preference for cultural practices and treatment strategies was uncovered as a salient theme. This interpretation process was used across the four areas under study to uncover salient themes and provide and overall essence of the experience of diabetes among farmworking women. During this analysis phase connections between

cultural and psychosocial influences on diabetes perceptions were made, as well as interpretations addressing the research questions and a comparison of themes and conclusions with the literature.

Pilot Study

Prior to this dissertation study, I conducted a qualitative pilot study in the fall of 2004 in a small, rural community near the Texas-Mexico border. This site was selected because it is an agricultural area, and has a high concentration of farmworkers and Mexican Americans residing in the community. In this naturalistic study, an ethnographic design was employed to explore the perceptions and meanings of type II diabetes mellitus among farmworking women.

Sample Selection

A non-probabilistic, purposive sample of seven Mexican American farmworking women diagnosed with type II diabetes mellitus were selected for participation. Selection criteria required (a) that participants be between the ages of 18 and 65 (b) diagnosed with type II diabetes for a minimum one year and (c) employed in farmwork for 12 months or more.

Recruitment Site

A local community center providing health care outreach services to Mexican American farmworking women was selected as the primary recruitment site. The director of the community center assisted with participant recruitment. I consulted with the director and explained the purpose and goals of my study. Given that I was a stranger to this community, the director felt the farmworking women would initially be uncertain about the intensions of this study. As a result, the director held an informal meeting and presented a brief overview of my pilot study to a small group of farmworking women frequenting the community center. After a question and answer session potential

participants were asked if they would like to volunteer. The director scheduled interviews for voluntary participants. I was introduced to volunteer participants before each interview. All interviews were conducted in Spanish, even though several participants spoke English. Two participants were interviewed in their home and five were interviewed at the community center.

Interview Process

At the beginning of the interview informed consent was explained. Participants were given the option of providing verbal or written informed consent. I explained to each participant that their responses to the brief demographic questionnaire and interview protocol would be tape recorded. Two participants agreed to verbal consent and remaining participants agreed to written consent and all participants agreed to tape recordings. Interviews lasted approximately 90 minutes. Participants were given a compensation of $10 after the interview was complete.

Demographic Characteristics

Participants ranged in age from 34-65 years, with a mean of 43.8 years. Fifty-seven percent of participants were married. Women in this study were primarily Spanish speaking (57%) and had an average of five children. However, this average may be slightly inflated because one participant reported having 15 children. Forty-three percent of participants were born in Mexico, and 57 percent were born in the United States. On average, participants completed the seventh grade, which is higher than the national average for this population (Metha, et al., 2002). A large portion of farmworking women depended on others for transportation (71%) and less than one-third owned a vehicle (29%). Participants worked approximately 5.3 months each year and reported annual earnings of $3683. These earnings are substantially lower than those reported by other researchers (Committee on Women and Agriculture, 1993; Rodriguez, Toller & Dowling,

2003). A large majority of participants did not have health insurance (57%) and less than half participants reported having Medicaid (43%). Overwhelmingly, 100 percent participants in this study could not name diabetic medications. Participants experienced average blood glucose level of 298 mg/dL, which are substantially higher than the recommended 120 mg/dL or less. Participants also reported other chronic illnesses, including high blood pressure (57%), high cholesterol (57%), suffering an embolism (43%), and vision problems (43%). Several women in this study reported having cervical cancer (28.5%), and an equal number reported experiencing multiple child deaths.

Salient Themes

Data showed that cultural practices and beliefs influence the meaning farmworking women ascribe to diabetes, its cause and treatment. Salient themes uncovered as a result of in-depth interviews with farmworking women include: (a) ethno-specific illness as cause of diabetes, (b) cultural treatment strategy, (c) diet, (d) consequences of diabetes.

Unanimously, participants reported *susto* (a fright) as the cause of diabetes, citing the death of children or life threatening situations as the event responsible for the fright. Participants reported the use of *nopal* (cactus), bean broth, *aselga* (seaweed) and *sabila* (aloe vera) as treatment for diabetes; although, several participants used a combination of home remedies and prescription medication. Farmworking women experienced diabetic dietary recommendations as restrictive citing the absence of traditional foods, such as beans, rice, pork, and *pan dulce* (Mexican sweet bread) as evidence. In addition, participants stated they did not understand why traditional foods were prohibited. Intermittent dieting was reported by a majority of participants as a strategy taken to control symptoms of high blood glucose levels. Participants monitored sugar and tortilla intake during episodes of high glucose; however, once symptoms subsided participants

resumed their normal diet. Participants perceived amputations as an unavoidable consequence of diabetes, citing the amputations suffered by grandparents, immediate family and friends as evidence. Overall, participants interpreted diabetes as a slow, inevitable death.

The pilot study provides preliminary data on farmworking women's perceptions about diabetes. This data suggests that the perceptions of diabetes among participants influence health care and treatment decisions among this population. In this study, farmworking women preferred traditional treatment strategies; although they were not entirely adverse to western medical practices. Dietary recommendations created a tremendous area of contention among participants. Finally, data also suggests that traditional medical models for diabetes maintenance may need to be restructured to incorporate traditional beliefs and treatment strategies in order develop effective and meaningful treatment programs to help this population reach safer blood glucose levels.

Testing of Data Gathering Instrument

During this pilot study I was able to test my demographic questionnaire and interview protocol. As a result, I revised these interview materials for use in this dissertation. The revisions to the demographic questionnaire include additional questions about diabetes medication and monitoring. The interview protocol was also revised. I found that several probes were similar to leading questions, and these were deleted. The question "what does diabetes mean to you" seemed confusing to participants. As a result, this question was revised to "how do you describe diabetes". This revision was easier for participants to understand. In addition, the experience of this pilot study also led me to develop a recruitment flyer for this dissertation. The use of this flyer provided my dissertation study a wider breadth of farmworking women, rather than just those farmworking women who seek services at the community center. Revisions to interview

materials and the addition of a recruitment flyer enriched my dissertation and increased trustworthiness and credibility. Finally, while offering the cash compensation I noticed that some participants were uneasy as a result. Several participants wanted to decline the compensation. As a result, rather than offer the compensation in cash money, I offered the compensation in an unmarked, white envelope. This strategy seemed to reconcile their unease. This strategy was also employed in this dissertation and was well accepted by farmworking women.

Chapter Five: Results

This chapter contains the results of the qualitative study of type II diabetes based on a non-probabilistic sample of 17 Mexican American farmworking women residing in California's Northern San Joaquin Valley. In-depth interviews were conducted to identify women's lived experiences with type II diabetes. The purpose of this research was to identify the most salient cultural and psychosocial factors influencing perceptions and meanings of type II diabetes.

The first section of this chapter describes the demographic characteristics of sample followed by family composition, economic characteristics, and diabetes history. The next section of this chapter addresses the cultural and psychosocial factors influencing participants lived experiences with type II diabetes. A collective summary of these factors is presented. The remaining sections in this chapter presents the salient themes from the qualitative interviews including (a) how farmworking women know they are sick, (b) beliefs about the causes of illness, (c) treatment strategies and (d) illness meaning. Although this study did not directly focus on family and the role they play in diabetes, many participants voluntarily addressed this issue; therefore, family functioning will be discussed at the end this chapter.

Before beginning the discussion of results, I have summarized the main findings of this study based on the research questions and highlighted the salient themes in each section. This dissertation also identified findings related to pathology and physiology of type II diabetes. These findings are also summarized.

Summary of Findings

The main findings from the study were:

- Farmworking women acquired knowledge of diabetes illness through treatment for other illnesses or classic symptoms (dry mouth, increased thirst, fatigue) of diabetes. Several participants had classic symptoms of diabetes for years before receiving a diagnosis. Some suspected that symptoms were related to diabetes while others did not.
- Overwhelmingly, farmworking women characterized the cause of diabetes based on cultural interpretations of illness. *Susto* (fright), an ethno-specific illness common in Mexican American culture, was identified as the primary cause of diabetes.
- Farmworking women preferred cultural treatment strategies for reducing symptoms of high blood glucose levels; although, many used combined cultural treatment and western biomedical treatment strategies.
- Overwhelmingly, participants perceived feared diabetes complications as life threatening, and life shortening.

In addition, this study revealed some new and important information that has not been previously identified in the literature. These findings are summarized below.

- Farmworking provided conceptualizations of heredity. They defined heredity as following an all inclusive, chronologically ordered path.
- Farmworking women outlined their reasoning about the physiological transformation of blood and pancreatic destabilization that occur as a result of *susto* (fright), which result in diabetes.
- Participants provided a numerical definition of normal, high and excessive blood glucose levels. It is worthy to note that normal levels reported by

farmworking women exceed those recommended by the American Diabetes Association (blood glucose of < 120 mg/dL by 100 mg/dL).

- Based on numerical definitions of blood glucose, farmworking women developed a numerical dosing strategy (of prescribed western diabetes medication), which is based on their subjective interpretations of the severity of symptoms of high blood glucose.
- Farmworking women outlined their interpretation of diabetes meal plans and restricted dietary categories, which is based on an incomplete knowledge about diabetes dietary recommendations.
- Participants volunteered information about the impact of diabetes in family functioning and characterized social isolation and marital discord as a function of diabetes dietary recommendations and restrictions.

Demographic Characteristics

Basic Demographic Characteristics

Sample characteristics are distributed across the variable characteristics, demonstrating a fairly diverse group of participants. Ages ranged from 25 to 65, with a median age of 46.6 years. A large majority of women (15 of 17) were first-generation immigrants (they themselves are immigrants), and two participants were second-generation immigrants (children of immigrants). In accordance with immigration status, a large majority of participants were monolingual Spanish (n=16), and one was bilingual in Spanish and English; although, this participant preferred to conduct the in-depth interview in Spanish.

In terms of education level, an overwhelming majority (n=14) of participants had attained less than a sixth-grade education, and one women reported no formal education.

Two participants reported completion of the 12th grade (one completed in the U.S and the other in Mexico), and one participant reported one year of college in Mexico. Table 1 represents demographics among farmworking women.

Table 1

Basic Demographic Characteristics

Variable	Number of Participants
Age (Median age 46.6 years)	
25-29	2
30-39	2
40-49	6
50-59	5
60-65	2
Nativity	
United States	2
Mexico	15
Language Preference	
English	1
Spanish	16
Highest Education Completed	
No formal education	1
1st – 3rd	8
4th – 6th	5
High School	2
College	1

Family Composition

Largely, farmworking women in this study were married or had a life partner and had children. The majority of women were married (13 of 17) or sharing a home with a domestic partner; three were not married and one participant was widowed. It is worthy to note that the one widowed participant was approximately 60 years old and still working in the field. She was accompanied by her daughter to the interview. All participants (n=17) had children ranging from one child to ten children. Table 2 summarizes participant's family composition.

Table 2

Family Composition

Variable	Number of Participants
Marital Status	
Not married	3
Married	12
Living with domestic partner	1
Widowed	1
Table #2 Continued	
Number of Children (average of 3.9)	
One	3
Two	2
Three	4
Four	3
Five	2
Six or more	3

Economic Characteristics

All participants reported estimated monthly earnings. Participants did not provide a check stub to arrive at this estimate rather they reported earnings based on memory. While a large majority of participants reported being married, the monthly income generated from their husband's earnings are not represented in this table; although it is estimated that farmworking men earn approximately $7,500 annually (Rodriguez, Toller & Dowling, 2003). For the purposes of reporting, the estimated monthly incomes amounts are illustrated based on the number of months of employment.

Throughout the sample the monthly incomes earned by participants are overwhelmingly low. Farmworking women reported average annual incomes of $4,340, which is lower than the estimated annual income for farmworking women reported by other researchers (Committee on Women and Agriculture, 1993; Rodriguez, Toller & Dowling, 2003). These earnings were based on an average annual employment period of 5.1 months. Annual income reported by participants in this study fall far below Federal Poverty Guidelines. Current poverty guidelines set annual income for one person at $8,980; for a family of five the annual income is set at $21,540 (U.S. Department of Health and Human Services, 2003).

A large majority of participants (15 of 17) in the sample reported *not* having employer-based medical insurance, and two participants reported having Medi-Cal benefits; although, one participant was not clear as to whether she was receiving Medi-Cal or emergency medical services only. Medi-Cal and emergency medical benefits are provided through California's Department of Social and Health Services public assistance program. Table 3 presents income and economic characteristics.

Table 3

Economic Characteristics

Variable	Number of Participants
Monthly income (median average= $851)	
Less than $1,000.	10
$1,000 - $1,200.	7
Number below poverty line	17
Employer based insurance	0
No insurance	15
California Medi-Cal	2

Diabetes History

Throughout the sample, farmworking women reported a strong family history of diabetes. This familial history spanned several generations. It is important to note that participants in this study did not know if their families suffered from type I or type II diabetes or a combination of both. A large majority of participants (11 of 17) had a maternal history of diabetes. Six participants reported siblings with diabetes and five participants reported having grandparents with diabetes. Thirty-six percent of participants (n=4) reported their mothers died as a result of diabetes complications; although they were not able to specifically identify the cause of death. All participants feared diabetes complications; particularly amputations. Thirty-five percent (n=6) of participants reported having a family member who had one or more amputations. There were no participants in this study who had amputations; though, several participants reported having (either currently or previously) wounds that were slow to heal. All accounts of

diabetes history were self-reported by participants. Table 4 summarizes diabetes history among farmworking women.

Table 4

Self-Reported Family History with Diabetes

Variable	Number of Participants
Family History of Diabetes	
Mother	11
Father	3
Siblings	6
Grandparents	6

Summary of Demographic Characteristics

The demographics in this section present a picture of a diverse sample of Mexican American farmworking women with type II diabetes. Despite the diversity of the sample, the typical farmworking woman in this study was 47 years of age. She was born in Mexico and monolingual in Spanish. They had less than a 6th grade education and could read basic Spanish material. Farmworking women were married and had an average of four children. They worked an average of five months out of the year; and earned an annual income of $4,340. Farmworking women worked in farmwork for an average of 20 years and as many as 46 years. Largely, the women lacked medical insurance and had a strong history of maternal diabetes.

Participant Phenomenological Perceptions

Providing a profile of farmworking women with type II diabetes based on demographics, family composition, economic characteristics and diabetes history

presents a basic composite of these women; however, this profile is only a portion of factors that influence how farmworking women make meaning of diabetes in their lives. In order to capture a full composite of their broader experiences of type II diabetes, participant quotes and narratives are used. Thus, this section describes the qualitative findings related to the overarching research question, "What are the perceptions and meanings Mexican American farmworking women attribute to type II diabetes?" Thick, rich description is used to substantiate salient themes. In accord with the research questions guiding this study, salient themes are reported in four areas (a) how farmworking women know they are sick, (b) causation, (c) treatment strategy and (d) illness meaning. Within each of these areas sub-themes are also addressed. A brief summary of each of the four areas is also discussed. The names assigned to participant quotes are fictitious and were based solely on the author's imagination.

How Farmworking Women Know They are Sick

Early detection of diabetes symptoms is important in preventing the onset of short-term and long-term complications. Diabetes symptoms have a classic appearance, such as excessive urination and frequent trips to the bathroom in the middle of the night, intense thirst and hunger and severe fatigue. Other symptoms may include, dry skin, blurred vision, and an unexplained weight loss. Beyond the classic symptoms, complications of diabetes include (a) neuropathy, (nerve damage) (b) retinopathy (retina damage) and (c) diabetic nephropathy (kidney damage). Each category of complication has warning signs that warrant immediate medical attention.

Neuropathy affects the nerves of diabetics and occurs as a result of metabolic changes associated with diabetes. Consistently high blood sugar levels destroy the nerves and the insulation surrounding the nerves, which results in loss of sensation, hyper-sensation or pain. Varying from mind to severe, neuropathy changes the sensation

beginning in the toes and moving up to the feet and legs. The warning signs for neuropathy are; numbness, pain of tingling feeling, sores on your feet, and a burning sensation.

Diabetic retinopathy is a deterioration of the small blood vessels that nourish the retina. These blood vessels develop tiny bulges causing swelling. In some cases the part of the retina where central vision occurs becomes swollen, which results in distorted vision. The warning signs for retinopathy are; blurred vision, sudden loss of vision, black spots or flashes of lights, redness in the eye and pain or pressure in the eye (American Diabetes Association, 1999).

Diabetic nephropathy is a long term complication of diabetes that damages the kidney's filtering system. The warning signs for diabetic nephropathy are protein in the urine, weight gain from fluid retention, and fatigue. This risk is increased if high blood pressure is present, so it is important to control both diabetes and high blood pressure.

Farmworking women in this study reported a multitude of classic symptoms and those that may be related to complications. The table 5 summarizes symptoms reported by participants.

Table 5

Symptoms Experienced

Common Symptoms	Other Symptoms Reported
Blurry Vision	Burning Hands / Feet
Dry Mouth / Increased Thirst	Cold Sweats / Feeling Faint
Fatigue	Heavy Shoulders / Tight Chest
Feeling Dizzy	Room Spins When Lying Down
Frequent Urination	Sensitivity to Light / Noise
Headaches	Thinning Hair

Farmworking women participating in this study reported acquiring a diabetes diagnosis primarily through symptoms and treatment for other illnesses. Some participants suspected that their symptoms were related to diabetes but kept these suspicions to themselves and others did not link symptoms to diabetes. For example, Pilar suspected she had diabetes because of her symptoms. She states:

> *I imagined I had it…I could not fill myself. All I wanted to do was eat and eat and I was very thirsty.*

An overwhelming 71% (12 of 17) reported having classic symptoms of diabetes for periods of up to eight years before receiving a medical diagnosis of type II diabetes. During this timeframe 47% of participants (n=8) reported using home remedies in an attempt reduce or eliminate symptoms and twenty-nine percent (n=5) reported enduring symptoms without attempts to reduce or eliminate symptoms. Others reported diet and over the counter medications for symptom reduction. For example, Patricia reported having classic symptoms of diabetes, as well as more serious symptoms of diabetes prior to receiving a diagnosis. She states:

> *I had the symptoms for eight years, but I started checking myself about two years ago. The doctor told me I had diabetes. I had blurry vision, lots of thirst and I went to the bathroom a lot…at night too. I had them for years…I just endured them.*

Several participants (n=5) reported acquiring knowledge of diabetes illness after having medical treatment for other reasons, such as pregnancy, cholesterol examination, physical examination and surgery.

It is noteworthy that four of these participants had gestational diabetes, their symptoms did not subside after delivery. Table 6 outlines symptomology and treatment statistics.

Table 6

Knowledge of Illness	
Symptoms	12
Other Medical Treatment	5
Symptom Reduction	
Home Remedy	8
No Attempt	5
Diet	2
Medication (OTC)	2

Beliefs about Causes of Diabetes

Although the cause of diabetes is not fully understood, environmental factors, such as obesity, age, and lifestyle as well as biological factors, such as heredity may contribute to diabetes.

Obesity is the most important environmental factor triggering type II diabetes. Excessive body fat, in some way, advances insulin resistance. Excessive fat above the hips is also associated with type II diabetes. Age also appears to play a role as new cases of diabetes tend to occur in those 55 or older. The thought is that as people age they tend to gain more weight. Finally, lack of exercise and high caloric intake can lead to type II diabetes.

Type II diabetes appears to run in families and the link to genetics is stronger in type II than in type I diabetes. Evidence for this link comes from minority studies where Native Americans and Hispanics get diabetes more often. Native Americans have the highest rate of type II diabetes in the world (American Diabetes Association, 1999), and Hispanic groups, such as Mexican Americans who have had intercultural marriage or

common law relationships with Native American groups have higher rates of type II diabetes than other Hispanic groups.

Genetics, as previously addressed, is a biological process that causes similarity between parents and their children (Jewell, 2001). Although several participants cited heredity as the cause of diabetes, it is important to note that farmworking women conceptualize heredity differently than medical definitions. Diabetes is considered hereditary only if it follows an all inclusive chronologically ordered path. For example, diabetes must be evident in their grandparent's generation, followed by both parents and sequential among sibling.

Participants conceptualized diabetes and its causes through cultural beliefs and ethno-specific illness. An overwhelming 82 percent of participants (14 of 17) reported *susto* as the primary cause of diabetes. Only twelve percent (n=2) reported heredity as the cause of diabetes, although these participants did not rule out *susto*. Participants situated *susto* into two categories; (a) loss of children and (b) life threatening events. This two-pronged relationship connecting *susto* and diabetes ultimately identified a physiological transformation occurring within the body when a *susto* occurs. The categorizations of *susto* as well as the physiological transformation are discussed in this section.

Death of Children

The first category of *susto* cited by participants relates to the death of family members. Farmworking women cited the death of family members in automobile accidents in Mexico and in the United States as the cause of diabetes. Participants reported having been either involved in or observing automobile accidents that caused the death of their children. Several participants (n=4) described the death of their children and subsequent unfolding of diabetes. For example, Isabel stated:

The doctor told me that a susto or coraje, but it (diabetes) was from the susto.

I am sure because of the death of my two daughters in a car accident. It gave me a great sadness. I wasn't sick but when I found out about my daughters' deaths it was a big surprise and then I got diabetes.

Tarcila reported the association of her daughters' death to her diagnosis of diabetes in terms of symptoms. For example, Tarcila stated:

My daughter died but I didn't go to the doctor. I had blurry vision and lots of thirst and hunger for years. Then after she died I went to the doctor and he told me I had diabetes.

Life Threatening Events

The second category of susto participants cited relates to life threatening events. Farmworking women reported events, such as a house-fire, serious injury to husband or self, automobile accidents, and witness to a murder and shootings as *sustos* causing diabetes. For example, Elena stated:

I was pregnant and was sleeping in the house. In the middle of the night I woke up because the house was on fire. We had run out of the house for our lives.

Mina also reported serious injury to a spouse, due to an automobile accident. She states:

What happened was when we came from Mexico. We had a car accident and my husband was in the hospital for one week in a bad coma. I was so worried because I thought he would not return from that. That he would die.

Injury to self was reported by participants as a type of susto that caused diabetes. For example, Irene stated:

I was in a car accident and got hurt bad and the susto and everything… Then after I ended up having lots of thirst. I would vomit and was "demacrada' (emaciated). *After the susto, I got really thirsty. I would drink big, big glasses of*

water and I couldn't get rid of the thirst. I started to urinate a lot and I was up four or five times at night and could not rest.

Several participants reported having been a bystander to a shooting and witness to a murder as *sustos* causing diabetes. For example, Maria stated:

I had a great susto. There was a man shooting his pistol and one of the bullets came towards me. That is what caused my diabetes.

Carmen however, reported having been an eyewitness to a murder that occurred in Mexico. Carmen stated:

I saw two men kill each other with guns. I have been this way since that happened to me.

Physiological Transformation

Largely, participants reported a common belief that diabetes is dormant in the body. Events creating strong emotions or anger can cause the dormant diabetes to awaken in the body. Participants reported *Susto* as the event causing diabetes to unfold in their body. Participants conceptualized the strength of a *susto* as so tremendous that it causes metamorphoses to occur within the body that leads to diabetes. While farmworking women were not able to describe, specifically, how the metamorphoses occurs they, they were able to generally describe the transformation. Participants outlined the following unique two-step transformation process into the following sections: (a) altered blood, and (b) destabilization of the pancreas.

Altered Blood

Farmworking women report the strong emotion of a *susto* causes a *revolucion* (agitation) in the body. Such agitation causes the blood within the body to heat to a boil. Participants report when blood is boiled a transformation occurs and subsequently it is irreversibly altered. As a result of this transformation, the blood becomes viscous and

depleted of vitamins. In this state, the thickened and weak blood clogs the veins and impedes the normal blood flow. The abnormal blood flow creates a situation whereby the natural production of glucose in the body exceeds its normal concentration level. Participants report that diabetes begins to unfold within the body once normal glucose levels are exceeded. This transformation occurs immediately or soon after the *susto* takes place. Likewise, symptoms of high blood glucose appear immediately or soon after.

Erika describes an altering of blood that occurs either simultaneously or shortly after the *susto* in which the blood cannot return to its natural functioning. She states:

> *The blood is altered. The glucose begins to work and it is uncontrolled…then after, it is not longer able to get back to its natural form—it's routine. I think it is the glucose…at the impact of the sutso the glucose gets uncontrolled*

Amanda describes altered blood as an unbalanced level of blood where the blood is heated. The heated blood then affects circulation and creates a pressure in the blood veins. She states:

> *I believe that the body is not at the level and the blood is…or runs slow. Our organism is affecting you and you affect the organism. But when people get scared...I believe it is a change in the blood. When your sugar raises your circulation of blood. The blood does not circulate and cannot break. You have to take care of yourself or your veins will explode.*

Alex characterizes a *susto* as a trembling of her body and while she is unsure of the exact process that occurs in the body she posits the *susto* depletes the body of necessary vitamins, which in some way causes diabetes. She states:

> *My body trembled. I do not know who to explain it…I do not know what happens inside the body that makes diabetes….because it depletes you of vitamins. Susto does something to the blood that makes diabetes appear.*

Maria describes altered blood as a process where the body exceeds its natural threshold of sugar. Once the *susto* occurs the body can no longer regain control of its natural sugar production. Maria also links this process to heart problems She states:

> *They say something is not right. I think that the blood accelerates, then the blood does not work right. There are times that when too much grease gets into your blood that the body does not circulate well because the blood has to circulate in the body and if it cannot circulate… that affects the blood. It gets very heavy and cannot circulate in the body. It complicates the way the body is because the veins also circulate to your heart and that is also included. The blood "se cuaja"* (coagulates) *and then the heart starts to NOT get the current of blood and then it cannot pump well…and that is also included. That is why people with diabetes also have problems with their heart, and the heart is paralyzed and the blood cannot circulate or pump*

Participants describe a complex physiological process related to the causes of type II diabetes that is related to functions of blood. Their conceptualization of this process appears to be based on common sense functioning of the body and their interpretations about the information received from health care providers. Table 7 outlines the linear causality of diabetes described by farmworking women.

Table 7

Linear Causality of Diabetes: Blood Alteration

Incident Causing Susto—Blood Alteration—Blood Flow Impeded--Overproduction of Glucose—Diabetes—Immediate Symptoms

The second step of the alteration process centers on the destabilization of the pancreas. The pancreas is a gland near the stomach that secretes insulin and supplies the first part of the small intestine, below the stomach, with digestive fluid. Insulin is a hormone regulating the amount of glucose in the blood, a lack of which causes diabetes (The Oxford American Desk Dictionary and Thesaurus, 2nd Addition, 2001).

Pancreatic Destabilization

Farmworking women in this study perceive the pancreas as a delicate gland, which cannot withstand the impact of *susto*. Failure of the pancreas to defend itself against *susto* causes it to weaken and enter into a state of malfunction. The malfunctioning pancreas is unable to process altered thick blood and accumulates grease, which in turn impedes blood flow. Participants report the malfunctioning pancreas can no longer regulate the amount of glucose in the blood. This constitutes a semblance of a shutdown of the pancreas and ultimately leads to excessively high levels of glucose in the blood, ensuing diabetes and immediate symptomology.

Ana describes the destabilization of the pancreas as damaged by the strong emotion of *susto*, which is due, in part, to the delicate nature of the pancreas. Her understanding of the pancreas is supported by her nephew, who is a physician in Mexico. She states:

> *It is said that the pancreas does not work and it gets sick and is no good anymore. It becomes damaged by strong emotion or anger. Anger affects the pancreas and it cannot hold it because it is so delicate. The pancreas gets infected. I asked my nephew, who is a doctor in Mexico, why we cannot get a transplant and he said the pancreas is very delicate…and we could die.*

Ofelia characterizes the pancreas as filling up with grease as a result of *susto* which renders it weak and ineffective in its ability to create normal levels of insulin She states:

> *They say the pancreas begins to get full of grease and then does not work and the people get diabetes. Well, they say that when you go through a susto the pancreas no longer works and does not make insulin…and then you don't have insulin in your body. The pancreas is very weak and that is when you get diabetes. The pancreas cannot handle strong emotions either…good or bad.*

Emma describes the pancreas as a kettle that can only hold so much. Once it is full it no longer functions correctly and is weakened. Her conceptualization is supported by a physician. She states:

> *I think the pancreas stops working. The susto affects the working of the pancreas…or it could be because of a medicine that you cannot sustain. The doctor told me that it (pancreas) was like a little pot and if you keep putting things in it that one day it fills up and cannot work. The pancreas is very weak.*

Participants in this study outline a physiological process that leads to the destabilization of the pancreas. These processes have been associated with *susto,* which is largely believed to be the cause of diabetes. Table 8 outlines the linear causality defined by participants.

Table 8

Linear Causality of Diabetes: Pancreas Malfunction

Pancreas weakened by *Susto* –Inability to process altered blood—Impeded blood flow—Pancreas unable to secret normal glucose in blood—Excessive glucose in blood—Diabetes—Symptomology

In summary, the alteration of blood and malfunction of the pancreas work collectively resulting in diabetes. Once the incident occurs the strong emotion of the *susto* overpowers the pancreas rendering it ineffective. In this state the pancreas cannot regulate the amount of glucose in the altered blood and subsequently produces excessive amounts of insulin. Consequently, diabetes unfolds in the body and symptoms begin immediately or soon after.

Treatment Strategy

Treatment of type II diabetes is complex and multifaceted. Maintaining healthy blood glucose levels requires a health team, daily blood glucose testing and treatment that includes, diet, exercise and medication. The American Diabetes Association (ADA) suggests a health team comprised of a physician, nurse educator, dietitian, eye doctor, podiatrist, mental health professional, exercise specialist and pharmacist. Monitoring daily blood glucose levels is the most important way to identify glucose control. A glucometer is commonly used for testing glucose levels in the blood. These levels identify glucose trends and help diabetics know if they need to adjust their diabetic regimen. Blood glucose levels are taken prior to meals and before bedtime. For persons with diabetes, blood glucose levels of 80 to 120 mg/dL before meals are recommended and glucose levels of 100 to 140 mg/dL are recommended before bedtime.

Dietary recommendations include limiting fats, cholesterol, protein and salt and increasing fiber-rich foods such as whole grains, fresh fruits and vegetables. Regular physical activity improves overall health and clears glucose from the blood. It is especially important for diabetics, who are at greater risk of developing cardiovascular disease. For women with type II diabetes, a regular healthy diet and exercise could avert the need for medication, help preserve bone mass, prevent osteoporosis, and reduce

stress. The ADA recommends 30 to 60 minutes of daily exercise. When medication is prescribed, it should be taken regularly.

Reflecting the complexity of treating diabetes and maintaining healthy blood glucose levels, farmworking women identified equally complex strategies. In the area of blood glucose levels and utility of a glucometer, participant's definition and understanding differ from medical definitions and testing strategies, thus these definitions are addressed in the beginning of this. A large majority of participants reported (a) home remedies as the preferred treatment strategy for type II diabetes, followed by (b) medication and (c) diet. Exercise was minimally represented in treatment preferences. In addition, even though the issue of family and diabetes was not specifically addressed as part of the research questions guiding this study, participants voluntarily addressed how diabetes affected the family; therefore, family functioning will be addressed at the end of this section.

Definition of High Blood Glucose

The definition of normal blood glucose levels recommended by medical practitioners is <120 mg/dL. When fasting blood glucose levels are consistently 126 mg/dL or higher a diabetic condition is indicated. Farmworking women in this study reported blood glucose levels that are substantially higher than the recommended <120 mg/dL. Participants reported an average blood glucose level of 220 mg/dL and average high blood glucose levels of 390 mg/dL. Table 9 outlines current and highest blood glucose levels experienced by farmworking women in this study.

Table 9

Blood Glucose Levels

Current (median = 220 mg/dL)	Highest (median = 390 mg/dL)	
136-208 = 5	216 – 300 = 6	
240-400 = 4	329-400 = 4	
Unknown=1	428-500 = 5	Unknown = 1
	700 =1	

Current blood glucose levels participants reported were largely subjective and based slightly below glucose levels at the time of diagnosis. Interpretation of high blood glucose levels in this study were primarily based on participant's analysis of symptoms, duration, frequency, and severity. These interpretations serve as an "educated guess" regarding the numerical value of high blood glucose. Participants reported highest blood glucose levels as levels at the time of diagnosis. Based on these interpretations, participants have developed particular medication strategies designed to help reduce symptoms of high blood glucose levels. This strategy will be discussed in the medication section of this chapter. Participants characterized high blood glucose as high, really high and, very high and provided examples of these glucose levels.

Ofelia recognizes her symptoms as those associated with high blood glucose levels and characterizes blood glucose levels as high when they reach 300 mg/dL to 320 mg/dL. She states:

> *I know when it is high…when I feel ill. It (glucose) is about 300 or 320, depending on what I eat.*

Rebecca also recognizes her symptoms as those associated with high blood glucose and characterizes blood glucose levels as really high when they reach 380 mg/dL to 400 mg/dL. She states:

> *When I see that it is really high…like 400 or 380 and I feel dizzy. I take two pills and I eat something. I have to eat food when I take the pills or I will not be able to relax.*

Estella reports blood glucose levels as very high when reaching 500 mg/dL. She states:

> *Little by little other people go to the doctor and they are very ill…the sugar level is very high…400 to 500.*

Table 10 depicts participant's definition of normal, high and excessive blood glucose levels and attention is drawn to the dissimilar numerical definitions held by participants and the ADA.

Table 10

Participant's Numerical Definition	American Diabetes Association Definition
Normal = 220 mg/dL	Normal = <120 mg/dL
High = 380 – 400 mg/dL	High = over 250 mg/dL
Excessive = 500 – 700 mg/dL	Excessive = over 500 mg/dl

Utility of Glucometer

A glucometer is a blood glucose monitor that is essential to self-management of diabetes. This testing devise measures the amount of blood glucose levels in a given blood amount. It is also referred to as blood sugar level. Blood glucose levels are measured in milligrams per deciliter (mg/dL), which is one thousandth of a gram per

tenth of a liter (Ascensia Care: Diabetes Care-Glossary, 2005). The glucometer requires testing supplies such as lancets. The lancet is a small sharp metal piece that actually pokes the finger to obtain a small blood sample. Lancets must be changed after each use to avoid contamination and inaccurate readings. The blood sample is immediately tested by the monitor for results that should be recorded in a register. Recording daily blood glucose levels is an important component in managing diabetes because these records help to identify trends in a diabetic's blood glucose levels. Based on these trends, diabetics will know if their meal plans, medication, and exercise are working to keep their blood sugar in good control or whether they must make additional modifications to their diet and exercise regimen. The American Diabetes Association recommends self-testing as many as four times daily (AscensiaCare, 2005).

Seventy-six percent of participants (13 of 17) reported owning a diabetes glucometer. Four participants reported they did not own a diabetes glucometer; although, two participants having family members with a glucometer who checked their glucose levels for them, albeit infrequently. Of the participants who reported owning a glucometer, sixty-five percent (n=11) reported infrequent blood glucose testing, while two participants owning a glucometer reported testing regularly; twice daily and once a week, respectively. All participants owning or having access to a glucometer reported they did not keep a log of glucose levels, and may not have known to keep a log. Table 11 identifies those participants owning a glucometer and those who test regularly.

Table 11

Glucometer Use

Own a Glucometer	Tests Regularly
Yes = 13	Yes = 2
No = 4	No = 15

Participants cited several reasons for testing infrequently: These reasons include: (a) fear of poking finger, (b) fear of knowing glucose is out of control, and (c) inability to afford the cost of lancets.

Natalie reports owning a glucometer and not testing herself regularly because she fears regular poking her fingers. She states:

> *I do not check regularly because I have to poke myself four or five times a day and I am afraid. While I am working in the apricots I do not poke my fingers. I check my blood when I don't work.*

Eva expresses her desire to check her blood glucose but fears the anxiety of knowing her actual level will raise her glucose level even higher. She states:

> *Yes, a person feels afraid. There are times when I want to check my blood but I am afraid…I do not want to check it because I get more nervous if it is really high…When I am more nervous it gets more out of control.*

Amanda, who, perhaps, suffers the most compromised health of all participants, reported owning a glucometer but is unable to use it due to the cost of lancets. She states:

> *Yes, I do have a machine but I do not have the needles to check myself four times a day. I cannot check myself when I cannot afford the tiras* (lancets).

Fear is a common strand throughout these participant quotes. Farmworking women may understand the need to monitor blood glucose levels, but do not fully understand the importance of monitoring, or how to use blood glucose level trends to make adjustments to their diet. Fear of poking their fingers, knowledge of their actual glucose levels inhibits monitoring, and financial constraints prevent monitoring.

Definition of Home Remedies

Participants defined natural foods and herbs that are believed to have medicinal purposes related to diabetes and reduction of symptoms of high blood glucose. Home

remedies can also serve a wide variety of illnesses. Home remedies originate from grandparent and great grandparent recipes and are often modified by subsequent generations. Modifications are based on new information or localized knowledge about ingredients. For example, the use of protein powder was noted among farmworking women as a modification to familial recipes. A large majority of women in this study reported extensive use of home remedies to treat symptoms of high blood glucose. In addition, participants also reported using prescribed diabetes medication to treat symptoms of high blood glucose. Table 12 outlines the use of home remedies among participants.

Table 12

Home Remedy and Medication Treatment

Home Remedy	Medication Use
Yes = 12	Yes = 13
No = 5	No = 4

Home remedies are reinforced by a belief that a particular ingredient or combination of ingredients can reduce or eliminate symptoms of diabetes. Home remedies are taken for their perceived vitamin content and ability to provide energy and strength. For example, *nopal* (cactus) and cinnamon are used as ingredients because they are believed to have properties that reduce glucose. Carrots are used for their highly regarded function of strengthening the eyes, which could reduce blurry or double vision. These home remedies have long been a way of life for farmworking families as a means to treat symptoms and illness. Home remedies have been passed down through generations and are long standing cultural traditions that are deeply embedded in diabetic treatment strategies among farmworking women in this study.

Of the participants who reported taking medications nine of 17 reported taking both home remedies and medication. Home remedies are prepared in many different ways. Participants outlined two categories of home remedies as (a) *liquados* (liquid smoothie) and (b) natural herbs.

Liquados

The most common preparation of home remedies is a *liquado.* A *liquado* is a liquid-type drink having a primary base of milk, juice, or water. The primary base is combined with natural fruits, vegetables, and traditional seasonings. *Liquados* have varied consistencies and can be taken hot or cold. For example, the consistency may be similar to juice, resemble soup, or have the thickness of a smoothie. A single ingredient or combinations of ingredients such as *nopal* (cactus), *sabila* (aloe vera) and *apio* (garlic) are combined and liquefied in a blender and consumed immediately after preparation. *Liquados* may take several hours, several days, or even up to one week to reduce glucose levels among this population. *Liquados* can be taken as a complete breakfast or a breakfast supplement along with a meal; although, it is not uncommon for farmworking women to take a liquado prior to or during other meals.

Tarcila reports the incorporation of a protein powder and a lemon-type powder into her liquados. She states:

> *Oh yes, I used lots and lots (of home remedies). The one I remember the most is…parsley and nopal. You prepare it in a liquid. That helps a lot. I drink it regularly…I drink a powdered drink that was sold in San Francisco for diabetes. I still drink it …and it works, too, and I drink a lemon-flavored drink to clarify the blood and for energy.*

Eva reports using carrots in her *liquado* because carrots are known to strengthen the eyes and carrots help her with her vision problems related to high blood glucose. She states:

> *I use carrots and garlic and I take it with my medicine. Sometimes I only drink carrot juice because the carrot helps me with my vision.*

Farmworking women in this study remained close to familiar traditional home remedies. These traditional home remedies were modified to include ingredients that are posited as improving vision as well as influenced by popular western protein supplements

Natural Herbs

Participants referred to natural herbs as both those herbs that are grown naturally and herbs they are familiar with. Natural herbs such as cinnamon, *nispero* (loquat), *yerba buena* (mint) and *mansanilla* (chamomile) are boiled with chili and made into a hot tea. This tea can be taken hot or cold. In addition, herbal tea can be taken throughout the day.

For example, Sara states she uses natural herbs to make a tea. She outlines the preparation of this tea in her narrative:

> *I cook nispero* (loquat) *leaves with one gallon of water and make tea with yerba buena and canella*(cinnamon).

Linda says that she prefers natural herbs and combines these herbs with vegetables. She states:

> *I chose nopal* (cactus) *and vegetables and things that don't have sugar—garlic is good, too, so is pineapple.*

Delia reports using natural herbs, such as *nispero* (loquat), *nopal* and fruit in her home remedy preparation. She states:

> *I cook nispero leaves with the roots and put pineapple, parsley, and nopal into my remedio* (remedy).

Home remedies can also be cooked. Often ingredients combined in *liquados* are fried with garlic, onion or chili. Ingredients contained in home remedies can also be boiled and then consumed. Still, other participants preferred to consume ingredients, such as *sabila* (aloe vera), right off the vine.

Farmworking women provided information about ingredients used in preparing home remedies. They also described how to prepare the many home remedies they use to help control symptoms of high blood glucose levels. In this study, farmworking women outline a myriad of ingredients. Table 13 depicts the home remedy ingredients most commonly used by participants in this study.

Table 13

Common Home Remedy Ingredients

Carralo de Elote (corn silk)	Garlic	Pineapple
Carrot	Linaza (flax seed)	Sabila (aloe vera)
Chaya (tree spinach)	Mansanilla (chamomile)	Tangerine
Chayote (unknown root)	Mispero (tree root)	Yerba Buena (mint)
Cinnamon	Nopal (cactus)	
Cucumber	Papaya Seeds	

A large majority of participants (71%) reported home remedies as the preferred treatment for diabetes; although many participants (9 of 17) reported taking both home remedies and medication. Farmworking women preferred home remedies because of longstanding family use and a belief that home remedies, that is, natural treatment, is the best treatment for diabetes.

Carolina reports that many home remedies are available in Mexico, but she prefers to use *nopal* (cactus). She also emphasizes during childhood illness her parents used home remedies to treat her. Carolina states:

> *It is difficult to leave them* (home remedies) *because I was raised with them.*

Patricia emphasizes home remedies reduce high blood glucose levels for longer periods of time than prescribed diabetic medication. She reports a preference for *nopal* (cactus) and natural treatments. She states:

> *Lemon water and cucumbers help to lower the sugar quicker…same as the nopal I eat in different ways. The medication controls it* (high blood glucose) *at the moment, but the effect lasts longer when I consume nopal. I prefer natural things.*

Alex reports the importance of taking prescribed diabetes medication but clearly explicates a preference for natural remedies to treat her symptoms of high blood glucose. She states:

> *They* (glucophauge and actos) *do help* (reduce symptoms of high blood glucose), *but I have faith in the things that are natural. The nopal and others are good—right? I like the natural herbs and you should take your medications, too. You have to try both. If I have to choose, I would choose things that are natural…nopal and vegetables and things that do not have sugar…*

While farmworking women reported a preference for natural home remedies, they also recognized the importance of prescribed diabetes medications and even used medications to bolster home remedy efficacy.

Medication

Participants reported that medication is the second best treatment for reducing symptoms of high glucose; however 53 percent of participants (9 of 17) reported taking

medications on an intermittent basis. For example, Enedelia reports taking several prescribed diabetes medications; although she frequently forgets or doesn't take them as prescribed. Largely this occurs as a result of side effects she experiences from the diabetes medication. She states:

> *I take Glucophauge for diabetes and Actos…like I said, I really don't take them… only when I remember. I just don't take them because the Glucophauge gives me diarrhea. Sometimes, we are out in town and I have to go…right now…that makes it hard to take.*

Estella acknowledged that she has not been seen for her diabetes by a physician for one year and she is candid in that she does not feel prescribed diabetes medications are effective in combating her symptoms of high blood glucose levels. She states:

> *It has been one year since I have seen a doctor for diabetes…I do not notice a difference when I take medication or when I don't take it.*

For these farmworking women, taking medications on an intermittent basis was influenced by medication side effects and beliefs that diabetes medication was ineffectual in symptom reduction.

It is worth mentioning that participants who were taking medications reported using home remedies in conjunction with medication. An additional 23.5 percent (n=4) reported taking medications as prescribed, while the remaining 23.5 percent of participants (n=4) reported not taking any medications at all. One-third (n=5) of the participants who reported taking medications were unable to name medications they were taking, yet all reported understanding dosing requirements. Participants cite several reasons for taking home remedies and medications together or in intervals. These strategies include: (a) maximum benefit of treatment, (b) alleviate abdominal discomfort, and (c) conservation of medication.

Maximum Benefit

Participants reported the efficacy of prescribed medications is maximized when home remedies are taken prior to prescribed dosing schedule. In this instance, farmworking women perceived prescribed diabetes medication as complementary to home remedies, rather than contradictory. In this study, home remedies were taken between two and four hours prior to medication dosage. Several participants indirectly implied that western medication is not as strong as the medications in Mexico and U.S. physicians ordered many laboratory tests before prescribing medication. For example, Isabel recognized that U.S. physicians had technologically advanced medical equipment, but she would send away for medications from Mexico to help her skin heal from small lacerations. She states:

> *Doctors* (U.S. physicians) *have good equipment but they are afraid to give you medicine. I took a picture and sent it to Mexico and a doctor sent me an ointment.*

Participants reported medications achieved optimal efficacy after home remedies entered into their blood system. For example, Ofelia states she has a familial history of using *nopal* (cactus) in a *liquado* (liquid or smoothie) and takes home remedies first and waits several hours before taking medications. She states:

> *I use a lot of nopal. I make it in a liquado because I feel better with it. I use nopal and then I wait for two hours to pass and take medication. It is difficult to leave them (liquados) because I was raised with them.*

Ofelia's represents the point of view of many participants who use medications as a compliment to home remedies.

Abdominal Discomfort

Farmworking women reported intestinal problems when taking diabetes medications alone or in combination with home remedies. Alternating between medication and home remedies offered participants relief from abdominal discomfort. This strategy also assisted participants in incorporating treatment strategies prescribed by medical practitioners while continuing traditional treatment strategies.

Ana reports taking both home remedies and prescribed medication; however, after taking home remedies for extended periods she develops intestinal problems. This is also the case when she takes prescribed medications. She states:

> *You get tired of taking the herbs. Like the sabila (aloe vera). It leaves a bad taste in your mouth…I was taking it for a long time….and I had trouble with my intestines. You get tired of taking the medicine too. It is better to take one for a little while.*

Isabel states reports the side effects of her diabetes medication as the reason for taking prescribed medication on an intermittent basis. She also reports intestinal problems, which make it difficult for her to leave the house. According to Isabel,

> *The Glucophauge… it makes me have diarrhea. I don't take because… I always have to go to the bathroom.*

Conservation

Several participants reported rationing diabetes medications because they did not know when they would be able to afford to refill medications. Medication was reserved for extreme episodes of high glucose levels. For example, Erika was diagnosed with diabetes after experiencing symptoms for many years. She reports that she cannot take her prescribed medication daily because she cannot afford to purchase more. As a result, she only takes medication when she can no longer endure symptoms, such as feeling

dizzy, nausea, blurry vision, and frequent urination. Erika's statement captures the sentiment of other participants conserving medication. She states:

> *The doctor told me I had this…They gave me a prescription of one pill a day. I cannot take them like that because when they are gone I cannot buy them. I take it when I feel real bad.*

Farmworking women in this study reported taking many different diabetes medications. Most were prescribed by U.S. physicians; although, some medications were prescribed by physicians or purchased over the counter in Mexico. Table 14 outlines medications farmworking reported taking for diabetes.

Table 14

Common Diabetes Medications

Actos	Beoglucon	Eglucon	Glucophauge	Glyburide

Dosing Strategy

Farmworking women who were prescribed diabetes medication employed a medication dosing strategy, beyond prescribed dosing strategies, to combat symptoms of high blood glucose. The medication strategy participants utilized to reduce symptoms of high blood glucose levels consists of a temporary increase of prescribed medication.

Farmworking women who perceived symptoms of high blood glucose increased prescribed medication dosage by one or two tablets. They continued this strategy until symptoms subsided. Participants reported immediate symptom relief after the first additional dosage, while others reported taking additional medication for up to 7 days before achieving symptom reduction. When participants perceived symptoms as those

associated with excessively high blood glucose, they reported taking an additional three to four tablets of their prescribed medication.

One participant reported she experienced excessive symptoms for months at a time. Another participant reported having been rushed to the hospital with blood glucose levels of 700 mg/dL. Table 15 outlines the dosing strategy farmworking women developed in an attempt to reduce symptoms high blood glucose levels.

Table 15

Dosing Strategy

Glucose Level	Medication Increase
220	No Increase
380 – 400	1 – 2 Tablets
500 – 700	3 – 4 Tablets

Erika reports that blood glucose levels of 400 mg/dL warrant an increase of prescribed diabetes medications from one tablet to two tablets; however, if she perceives her blood glucose levels are in excess of 500 mg/dL she increases her medication dosage to as many as four tablets. She states:

> *When I see that it is really high like 400 or 380, I feel dizzy. I take two pills and I eat something. I have to eat some food when I take the pills or I cannot relax. If it is over 500 I take three or even four.*

Similarly, Amanda increases her medication dose when she experiences an episode of high blood glucose; although, she increases her medication by half a tablet. Amanda states:

> *I increase the medicine and when it gets controlled I reduce the medicine. When it is high I take half of a tablet more. It works to reduce my asucar* (sugar) *slowly.*

Sometimes it takes two or three days before my asucar reduces.

Prescribed diabetes medication is one of the many recommended treatment strategies for maintaining healthy blood glucose levels. Specifically, the regular use of prescribed diabetes medication is a treatment strategy that focuses on *prevention* of high blood glucose levels. However, it is important to note that the basis for the development of the prescribed medication dosing strategy outlined by farmworking women focuses on defending themselves against high blood glucose symptoms. That is, participants developed this prescribed medication dosing strategy as a mechanism to combat symptoms of high blood glucose *after* they occur.

Diet

Diet and nutrition are key components in maintaining healthy blood glucose levels among diabetic patients. The dietary recommendations are complex and require close attention to meal planning, and portion control. The assistance of a dietitian is a key ingredient towards successful meal planning and glucose control. The American Diabetes Association dietary recommendations includes limiting fats, cholesterol, and protein and increasing consumption of fiber-rich foods, such as whole grains, fresh fruit, and vegetables. For example, carbohydrates should represent approximately 60 percent of total daily calories, and should be derived from mostly complex carbohydrates, such as fruits, vegetables, and whole grains. Protein should represent approximately 10 to 20 percent of total daily calories. Fats should be less than 30 percent of total daily calories and fiber should represent approximately 35 grams daily.

All participants in the sample reported difficulty understanding the dietary recommendations and interpreted the diet as very strict, focused on portion control, and more importantly, lacking traditional preferred traditional foods. Moreover, a large majority of participants (14 of 17) reported they lacked a sufficient amount of food to eat

while growing up, making the diet even more difficult to conceptualize because they felt would leave them hungry once again.

This section presents participant's narratives about their perceptions and implementation of recommended dietary modifications. Thee narratives include: (a) generalized fear about eating, (b) not getting enough to eat and (c) lack of traditional foods. Examples of participant's meals perceptions about restricted and permitted dietary categories are also presented. In addition, how diabetes impacts farmwork will also be addressed, as well as exercise.

Farmworking women reported enormous anxiety and perseveration about food in terms of what to eat, how much to eat, how small a portion to eat, how to prepare foods and which food groups were better or worse for them to eat. Study participants worried they may eat foods that would cause blood glucose levels to peak and at the same time worried about their caloric intake and its impact on employment. For example, Sara reports a generalized fear about eating. In her statement she is clear that she is confused about the dietary recommendations and worries about her employment. Sara's narrative captures the overall sentiment of farmworking women in this study:

> *Tengo temor de comer (I am afraid to eat) because eating too much sweets or eating the wrong foods will cause my blood sugar to go high, and if I eat too little I will not have enough calories to make it to the end of the day working in the field.*

In an attempt to replenish vitamins and boost her energy, Betty incorporated protein powder into her diet. She reports mixing protein powder with her *liquado* (liquid like drink). In this narrative, Betty is clear that the dietary restrictions may potentially jeopardize her employment. She states:

> *What helps me with I work…well I purchase a natural liquado (protein drink) that*

does not have any sugar but has all the vitamins. It is expensive, but just for myself… it lasts me one month. When I work I need energy, since one does not eat sweets and one cannot eat what one wants to get full…one needs vitamins to have enough strength. You know that at work the supervisor is there to have you work. Because there, they will lay you off.

Throughout the sample, participant's reported that the diabetic diet does not provide enough food to eat and the small portions recommended "only offer enough food to take the hunger away". Participant's reported experiencing frequent cravings for preferred foods. In these instances, participant's allowed themselves a small piece of the food to reduce the craving.

Delia outlines her daily meals and food portions. From her narrative, it is clear that Delia makes efforts to incorporate the dietary recommendations even though it is difficult for her. She states:

I eat one taco in the morning and I cannot eat any more than one tortilla. At noon they (supervisor) give us half an hour for lunch and I eat fruit. It is only when I get to my house that I eat good, but I cannot eat too much.... I have to eat small portions of meat, beans and rice. I eat portions that fit into the palm of my hand and I eat a lot of fruit and salad, if I have to. They say potatoes have lots of sugar. I used to eat two potatoes every day, but now...Sometimes I have one that way I take away the desire. It is a rigorous diet, but we have to do it to take care of ourselves so we are better.

In an attempt to incorporate diabetic dietary recommendations into their everyday diet, farmworking women found themselves feeling deprived of sufficient nourishment. As a result, they found alternative supplements to replenish themselves with vitamins,

protein and energy. Table 16 highlights examples of daily meals consumed by farmworking women based on their perceptions of the diabetic diet.

Table 16

Diets Reported

Breakfast	Lunch	Dinner
Egg	Chicken	2-3 oz Meat
Sliced Tomato	Small Portion of Rice	Beans/Rice
Piece of Toast	1 Tortilla	Salad
Milk	½ Glass of Milk	Fruit
Cactus/Pineapple	Protein Supplement	1 Potato
Coffee/ Bread	Fruit	Tortillas and Available
	Bread/Beans	Food

Traditional foods were minimally represented in the diets participants reported. Those that did report consumption of traditional foods did so with strict adherence to portion control. Participants reported feelings of hunger and did not feel satiated after meals. Overall farmworking women in this study did not understand why traditional foods were prohibited from the diabetic diet. For example, Rebecca's narrative depicts her efforts to exclude traditional foods from her diet and the consequences of eating a full traditional meal. She states:

> *The diabetic diet does not include traditional foods, and that is hard. I still eat it but try not to eat too much. But, when people say…come and eat…besides, you do not eat it every day. So when I do eat it I eat a lot…until I am full and satisfied. But then after I feel bad.*

Finally, Mary's narrative portrays the sentiment of farmworking women in this study. She is clear that the diet is confusing and she lacks an understanding of how traditional foods, such as rice and tortillas, are converted to glucose in the body. Mary states:

> *I need more information on why we can not eat too much rice and tortillas. I do not understand why I cannot eat traditional foods. But, they tell me that traditional foods hurt me because I have diabetes.*

Participants interpreted the diabetic diet as prohibitive, restrictive and largely vegetarian. The lack of traditional foods in the diet was the source of a great deal of stress and caused women to perseverate about the diabetes diet and focus on what they could *not* eat. Some participants would give into their cravings for traditional foods and then experience symptoms of high blood glucose shortly after the meal. The table below outlines restricted dietary categories outlined by participants.

Table 17

Restricted Dietary Categories

Meats	Fruits	Traditional	Liquids	Condiments
Beef	Banana	Beans/Rice	Coffee	Salt
Pork	Honeydew	Chili	Juice	Sugar
Turkey	Pineapple	Lard	Soda (regular)	
	Watermelon	Lentils		
		Sopa (soup)		
		Tamales		
		Tortillas		

Diet and Farmwork

Farmworking women reported the diabetic diet as incongruent with their lifestyle and employment. Farmworking women emphasize the need to satiate their frequent thirst creates a situation where they have to use the restroom; however, the restrooms are at the end of very long rows and foremen disapprove frequent restroom use, causing the women urinary tract infections. Participants in this study linked limiting food intake to vitamin deficiency, a lack of energy, and an inability to have enough strength to make it through the day working in the fields.

For example, Adelina reports bladder infections as a result of drinking water to satiate her frequent thirst, and an inability to use the bathroom. She states:

> *Diabetes affects you* (in the fields) *because you get really tired and you have to drink lots of water. Then you have to aguantar* (endure) *the urge to go to the bathroom because the bathrooms are at the end of the field. Then you have to worry about your bladder, too.*

Sara reports a serious urinary tract infection as a result of enduring prolonged urges to use the bathroom while working in the fields. In her narrative, she also explicates the severity of her infection and a fear of going to the bathroom out in the open for fear that the male workers will see her. She states:

> *You cannot drink lots of water in the field because you will have to go to the bathroom a lot and the foremen do not like that. When I was working in the peaches the bathrooms were at the end of the rows…they were so long. You had to wait to go to the bathroom and it was impossible. I always have bladder infections. It hurts and it is a horrible thing…I would get better and I could not manage it* (wait to go to the bathroom) *and they told me to go behind the weeds, but I told them I was afraid…with all the men and everything. I felt really bad and*

ran to the doctor and it (her urine) *was pure blood that I would urinate then*

Delia reports the difficulty of eating small portions of food and the subsequent consequences, which she describes as a lack of nourishment. She explicates her concern that she will not have enough energy to sustain herself while working in the fields. Her narrative describes her need to eat enough food and highlights the incongruence of the diabetic diet and farmwork. Delia's sentiment resonates with farmworking women in this study. She states:

> *When you are killing yourself in the field—because the work is hard—for a person to survive on a small salad…you cannot aguantar* (endure) *the day. So you have to eat enough food to make it through the day. We cannot make it through the day like that. We have to eat what our body's request of us so we can work and have the strength to work in the field. It* (the diabetes diet) *is against the life for us because we know that we cannot have enough strength to make it through the day if we eat such small amounts*

These narratives draw attention to the serious affects of diabetes and farmworking women and highlight the increased difficulty of symptoms of high blood glucose levels, the potential for malnourishment, urinary tract infections and potential job loss as an indirect consequence of diabetes.

Exercise

Collectively, participants in this study reported exercise as moderately important in treating diabetes. Among farmworking women walking was the preferred method of exercise; however, 82 percent (14 of 17) of participants reported they did not walk regularly. Participant reported walking to the grocery store or around town. Farmworking women who lived in very rural areas walked country roads, often for several miles at a

time. For example, Estella reported walking to town for groceries and then across town to pick her son up from school. She states:

When I do not work I walk to the store for provisions and then back home. I go and pick up my son from school and sometimes go and visit my sister.

Tarcila incorporated exercise into her daily routine. She states she walks for several hours daily along rural country roads. She states:

I try to have a routine…I walk about three hours…from here (her home) to Grayson and back.

Participants cited several reasons for not walking daily. Participants cited exhaustion as the primary explanation for lack of physical exercise. In addition, they cited concerns about getting blisters on their feet as reasons for not walking daily. Blisters on the feet can lead to infection, and ultimately amputation. More to the point, farmworking women stated the physical demands of their work constitute physical activity.

Summary of Treatment Strategy

Despite the fact that 53 percent of the farmworking women in this study incorporate western medicine into their treatment strategy, participants preferred long standing, well regarded home remedies as the ideal treatment for diabetes. These farmworking women in this study experience higher than average blood glucose levels (220 mg/dl). As such, their definition of high blood glucose differs from the standard medical numerical definition. Although a large majority of participants reported owning a glucometer, very few reported using the testing device to monitor daily glucose levels. Medication was also cited as a treatment for diabetes; though, a large majority used medications only intermittently. By and large, farmworking women in this study struggle with the strict and prohibitive diabetic diet. Overall, farmworking women do not

understand how foods convert into glucose. Although participants cited exercise as an important component in managing diabetes, a large majority did not incorporate additional physical activity stating that farmwork itself was exercise.

Family Functioning

Although the interviews did not directly inquire about family functioning, many participants volunteered information about their family life. The inclusion of family functioning is important in light of the fact family plays a vital role in traditional Mexican American culture. This role, referred to as familism, is derived from strong feelings of family loyalty, reciprocity and solidarity (Marin & Marin, 1991; Niska, 1999), and is one of the most important values among Mexican American families.

As previously noted, the overall goal of the diabetic diet is to manage blood glucose levels; however, there are secondary effects of this diet among farmworking women, their children and husbands. Farmwoking women in this study described a change in family functioning related to dietary recommendations. Specifically, participants in this study report (a) social isolation, (b) family dynamic alterations and (c) marital discord related to diabetes.

Social Isolation

Social activities refers to attending festivities with family and friends, such as birthday parties, traditional holiday celebrations, and events to celebrate Catholic sacraments of baptism, first Holy Communion, and marriage and other family gatherings. Several participants reported social isolation as a result of diabetes and the diabetic diet. Rebecca's quote captures the overall sentiment of women who reported social isolation, and "feeling out of place" among friends. She states:

It is hard to live with this illness. It is hard to go to a party and they have pastry. If a friend offers you a beer or a glass of wine and you have to ask for water

instead. You feel out of place. It (diabetes) *affects how they accept you in your society. It affects you a lot.*

This narrative highlights the difficulty farmworking women experience with diabetic dietary recommendations and social isolation is compounded by these recommendations.

Family Dynamic

Changes in family dynamics include segregated meals and parent child discord. The underlying isolation referenced above was also present within the family dynamic component. Women in this study reported eating different meals with their families. For example, Ofelia states:

I make my foods and then separate foods for my husband and kids. How can I have them on my diet? Diabetes changes the way we eat in our family.

In attempt to eat properly and please her children, Laura prepares herself a modification of the meal she prepares for her family. Laura eats her meal first and then prepares meals for her children. Laura states:

If my kids want refried beans, then I eat the beans from the pot first and then I refry them (beans) *for my kids.*

Sylvia, on the other hand, prepares herself salad or foods with less grease and has modified family meals by eliminated lard and substituted cooking oil. Eliminating lard from food preparation has created conflict between Sylvia and her children. She states:

I make foods for my kids and eat salads or things without grease. So, I eat differently than my family. It is hard. My kids get mad because they liked the way my food tasted when I used lard and now I do not use it and they get mad because the food does not taste good. It has affected my family because I do not cook the things they like to eat. My husband does not say anything, but

I know he does not like it. It is hard for me.

All participants reported the difficulty of this dynamic and implied experiencing a feeling of detachment from their family, concern about their role as a parent, and their ability to care for their families as a result.

Marital Discord

Participants reported the diabetic diet as a source of contention among their husbands. The discord surrounded (a) impact on children, (b) meal preparation, and (c) sexual intimacy.

Sara reported conflict with her husband about the diabetic diet and its impact on their children. Sara states:

> *It* (diabetes) *has torn us apart a little. It causes a tear between myself and my husband. He used to like to go out and eat and now many times I don't go with him. He asks me if I want him to bring me something and when I tell him to bring me a salad he says "do you think a salad is going to last you?" When he goes to the store to buy food he returns with cookies and candies…..things I cannot eat. Sometimes I get mad and say "why do you bring that to the house? You know I can not those things? But he says "your kids have a desire for cookies and candies" and than I feel it….so I keep quiet.*

Ofelia reported disagreement with her husband, who does not accept her diagnosis of diabetes and objects to the addition of vegetables into their diet and discontinuing the use of lard in traditional cooking. She states:

> *I knew I was going to have it and my husband would get mad if I talked to him about it. But my husband said …that I was calling the disease to myself and he really did not accept it when the doctor told me. He would say "you don't have anything" I never used to make vegetables. Now I cook with much less grease*

and more salad. I make cooked vegetables with broccoli, carrots, cauliflower, corn, and all that. And my husband says "when have I ever eaten broccoli"… Just because of your illness? He likes the way I cooked before. Now the food has to be cooked without salt, grease…We are used to making tamales and now we can not eat tamales. There are a lot of things we cannot make now, so there are lots of traditional foods that we do not eat. For example, posole (hominy), pork meat, tamales and enchiladas and tacos of pollo (chicken) or potatoes.

Sexual Intimacy

Several participants volunteered information about sexual intimacy among spouses. Medication was cited as the culprit for experiencing a diminished libido. For example, Norma states that her medication makes her ill and as a result she no longer has a desire to "be with" her husband sexually. This narrative summarizes the sentiment of farmworking women who reported diminished sexual intimacy with their spouses. Norma states:

The medicine makes you really sick and hurts you in your sexual relationship with your husband. This medication, glucophauge, takes away your desire to be with your husband (sexually). You don't have it….it is strict…the medicine makes it hard to be with a woman who is like that. Someone who is always pushing your husband away, and it is not because you don't want to, you just don't feel like it.

Summary

Although the qualitative nature of this study did not specifically focus on family discourse, the narratives of farmworking women in this study bring to light an overarching sense of isolation, parent/child role modification, and altered spousal interactions and a loss of sexual intimacy. Overall, the family discourse suggests that

diabetes is a solitary and exclusionary illness perceived by participants to threaten parent child relations, sexual intimacy and matrimony.

Meanings and Perceptions of Diabetes

Illness meanings narrate how people make sense of their illness. In this case, how diabetes is understood and what will happen as a result of illness. Cultural beliefs and family experiences also influence illness meaning.

A large majority of participant's family members suffered diabetes complications, amputations and even death. After having witnessed parents and grandparents suffer from diabetes complications, it is not surprising that the entire sample of farmworking women feared diabetes. Seventy-one percent of participants (12 of 17) feared death and the remaining 29 percent (n=5) were apprehensive about their health. From an analysis of the qualitative in-depth interviews regarding meanings and perceptions four themes emerge: (a) taking care of self (b) complications (c) amputations and (d) death.

Taking Care of Self

The perception of taking care of the self among women in this study was externally based. Essentially, farmworking women perceived taking care of themselves as an antecedent for protecting against external complications of diabetes. The perception of taking care of the self focuses on averting *coraje* (intense anger) and foot care.

For example, Andrea conceptualizes taking care of herself as controlling anxiety, emotions and problem. Andrea states:

> *Like when a person has problems in the home and they have lots of corajes also affects the way a person lives. If a person has a strong emotion or coraje it also affects diabetes...because it causes a lot of problems...Because at any time you have a strong emotion, happiness, something could happen. You have to try and control everything. There is a lot to control.*

Ofelia's validation for protecting herself from suffering *coraje* is medically based. She states:

> *I know a coraje raises the sugar...when a coraje happens the sugar in your blood gets really high. That is what the doctors tell me not to get mad because it will make my sugar go up.*

Secondly, foot care was reported by participants as an essential component of taking care of themselves. Farmworking women characterized foot care as a way to protect against infection and ultimately amputations. In Carmen's case this method of prevention is validated by a physician. She states:

> *It finishes you quickly. Everything hurts and there and then it hurts your kidneys. From that disease comes lots of other illness. If you get hurt you get an infection and that is bad, so you have to take care of yourself all the time. Even after you take a bath you have to be careful to dry your feet really good. After I shower, I sit down with a hand towel and dry my feet between my toes and put on powder and then it protects my feet from infection and all that. You also have to be careful when cutting your toenails because if you cut yourself a tiny bit you get a bad infection. They tell you to take care of yourself for your own good. The doctor tells us to take care of ourselves so we don't get our foot cut off.*

<u>Complications</u>

The second theme participants reported relates to complications resulting from diabetes. Diabetes complications can be extensive and include blindness, heart failure, and kidney failure, wounds that do not heal, and lower extremity amputations. However, fear of wounds that do not heal and amputations were most prevalent among farmworking women in this study. When Linda discussed her fears about diabetes she is

reminded of her father's diabetes complications and is conscious of the similarity between herself and her father. For example, Linda states:

> *I was afraid of complications, like my dad.. sores that don't heal. I was worried for my health and didn't believe the diagnosis until I had complications. My sores don't heal. When I cut my toenails they get infected.*

Enedelia reported having open wounds on her leg and forearm; however, she used an ointment prescribed to her daughter for a skin burn to help heal her sores. She states:

> *See, I have these little "granitos" (small pimples). They are like little blisters and see; I have another one here coming out. I put ointment on to try and cure this but it has been here for a very long time.*

Amputations

Participants also reported fear of amputations. This fear was based on familial, societal, and personal experiences. It is important to note that none of the women in this study were amputees. For example, Juanita's fear of amputations is based on familial experience. In her description, Juanita reports a fungus as responsible for her mother-in-law's amputation; although, what she describes is more closely associated with gangrene. She stated:

> *My mother-in-law... had complications because she got herpes on her foot. She went to the doctor to take care of it (herpes) and it was eating her foot. You could see the bone in her foot, and then they (doctors) had to cut off half of her foot. They ended up having to cut her leg below the knee.*

Maria characterizes her fear of amputations based on societal experiences. She states:

> *You cannot cure diabetes. It is an illness that a person has. I think about the complications of it. They (doctors) can cut off your foot and fingers. Diabetes*

is ugly because they cut off your fingers and feet and everything like that. I have always seen lots of people with diabetes and thought that they were going to cut my toes and fingers off. That is the most sad of all. I am afraid of that.

Linda, Enedelia, Juanita, and Maria's fears about diabetic complications were based on familial, personal and societal experiences with diabetes. Their fears were justified, reinforced and intensified by these experiences.

Death

Participants narratives, overwhelmingly, link diabetes to death. Words used to describe diabetes depict it as traitor and war against the body. For example, Gloria portrays diabetes as a war her body has waged on itself. She states:

Diabetes is bad, bad, bad. It is a traitor because you cannot feel it. You have to learn to care for yourself against the fatal attack that diabetes is on your body.

Marta is straight-forward in her characterization of diabetes and is specific about her fear of heart attacks, dying in her sleep, and complication. She states:

I am afraid of diabetes. Diabetes is very scary and gives you heart attacks. With diabetes you can die in your sleep. It feels awful to have diabetes; you get night sweats and I feel awful to have it. I am afraid of complications because of what happened to my grandma—amputations and kidney problems and things like that.

Beatriz is also clear about her perception of diabetes as death:

Diabetes is death. For me, diabetes is death. This disease takes you to your death. You have to take care *of yourself against getting complications.*

No where is it more evident that farmworking women equate diabetes to death than in words used to describe diabetes in their lives. Farmworking women use words such as frightening, mortifying, tragedy, starvation and traitor to depict diabetes. Table 18 outlines the language participants use to characterize diabetes.

Table 18

Words Used To Describe Diabetes

Awful	Death	Slow Death
Challenge	Fatal	Starvation
Dangerous	Frightening	Terrible
Desperate	Mortifying	Tragedy
Destroys Body	Regretful	Traitor
Die in your sleep	Shocking	Weakened Body

Summary of Illness Meaning

Farmworking women in this study understand diabetes through familial, societal and personal experiences. Anectodatal, observed evidence and personal experience with diabetes serves to justify fear of complications and death resulting from diabetes. Participants view diabetes as an attack on their body and take a defensive role to protect themselves against complications, amputations, and death.

Cultural Influence

Culture has been defined as traditions, customs, language and norms that individuals learn from families and social communities. These findings show that farmworkers bring with them a cultural system of health and treatment that is different from western medical practices. These cultural beliefs and practices remain a strong part of the medical philosophy of farmworkers (Kleinman, 1980; Tompson & Wiggins, 2002). This section describes how cultural beliefs and practices influence knowledge of illness, causation, treatment strategies, and perceptions and meanings categories among this population.

How Farmworking Women Know They are Sick

Culturally, women are identified as the primary caretakers responsible for children and spouses. As such, they often consider their family needs first, and then their own needs. This delay in meeting personal needs is culturally and economically influenced. Scheduling expensive medical appointments and even purchasing medicine can overextend the family budget and place the family in financial difficulty. Specifically, the decision to seek medical attention may mean forgoing the purchase of food for the family, which would be interpreted as irresponsible and being a poor mother and wife. Second, lack of medical insurance and knowledge about early detection and identification of serious warning symptoms contribute to this delay. Furthermore, farmworking women do not have sick or vacation days. Taking time from work for a medical appointment means earning less income for the family and compromises their ability to care for their family.

Farmworking women in this study reported symptoms of enduring (aguantar) their illness, such as dry mouth, frequent urination, itchy hands and feet, blurry vision and fatigue for several months to several years before receiving a diagnosis of diabetes. Although, several women suspected that these symptoms were related to diabetes, they kept such suspicions to themselves. Participants were diagnosed with diabetes after having been to the doctor due to other conditions, such as pregnancy, wounds that were slow to heal or surgery. These conditions were perceived as more important or more serious, (ie. warranting medical attention) than the prolonged symptoms of diabetes they had been enduring. Although prolonged symptoms alone did not warrant medical attention, severity of symptoms and external manifestations such as wounds that were slow to heal did provoke farmworking women to seeking medical attention.

Causality

Farmworking women in this study used ethno-specific illnesses to explain the cause of type II diabetes. Ethno-specific illnesses are primarily trauma based and function as the basis for conceptualizing diabetes and other types of illnesses. Built on generations of cultural beliefs and familial experiences, *Susto* (fright) is one of the most common ethno-specific illnesses within the Mexican American culture. *Susto* is thought of as having a single-event cause, such as experiencing intense emotions or suffering a trauma.

Participants reported *susto* as the primary cause for diabetes. Farmworking women substantiated this notion anecdotally through the testimonies of family members or friends who suffered extreme emotions or severe trauma that resulted in diabetes. Moreover, participants reported that experiencing additional *susto*(s) would aggravate and worsen their diabetes and ultimately lead to in increased weakened state. As such, farmworking women made conscious efforts to reduce stress and stressful situations and avert episodes of anger. In doing so, participants accepted the undulations of life experiences as a category of fate. Essentially, participants interpret fate as a strategy that helped to maintain control of their diabetes.

What are unique about these causal perceptions are the physiological changes that occur as a result of ethno-specific illness. These data suggest that farmworking women base the cause of diabetes on common sense knowledge about how the body functions and cultural interpretations of illness and these interpretations influence strategies for maintaining normal blood glucose levels.

Treatment Strategies

Multigenerational customs and narratives shape a family's health beliefs and treatment practices. Farmworking women incorporated longstanding home remedies derived from grandparents and parents trusted recipes into diabetes treatment strategies.

Further, culturally accepted treatment strategies were also amended by participants to incorporate new ingredients. These practices impact farmworking women's treatment decisions and influence prescribed diabetes medication dosing strategies.

By and large diabetes treatment strategies among farmworking women included home remedies in their treatment of diabetes. These culturally and trusted treatment practices made use of natural herbs and foods to reduce symptoms of high blood glucose. Natural herbs and foods are selected based on their medicinal value and proven track record for reducing symptoms of high blood glucose. Participants demonstrated a determined effort to understand and incorporate western medical practices into their diabetes knowledge base and accepted treatment strategies.

Treatment strategies for diabetes among farmworking women were largely influenced by multigenerational cultural beliefs and trusted home remedies; although, participants commonly combined both cultural practices and western medical practices into diabetes treatment strategies.

Perceptions and Meanings

Among Mexican American women in this study, perceptions of diabetes were constructed within a socio-cultural, economic, and familial context.

Socio-cultural

Participants explained illness by connecting it in a direct and specific way to a culture based fund of knowledge, familial history, and past experience with traditional treatment practices. Perceptions of diabetes were based on specific events and biographies. From these factors, participants were able to generate personally meaningful and relevant etiologies consistent with illness and treatment experiences.

Economic

Perceptions of diabetes were also influenced by financial constraints, high cost of diabetes medication and supplies, and a specialized diet. To a large degree, diet served as the strongest influence on the perceptions of diabetes among participants. Economic constraints placed an undue burden on the family budget and a disproportionate level of anxiety on farmworking women. These factors, in part, guided how participants lived with this illness as well as their decisions to seek treatment and ability to maintain a course of therapy.

Family

Another contributor to the perceptions of diabetes involves the family domain. Participants reported diabetes as the rationale for social isolation, altered family rapport and marital discord. Feelings of isolation were constructed based on restrictive dietary recommendations. Farmworking women experienced a moderate to high level of social isolation related to dietary restrictions as guests at traditional social functions tend to be offered foods that are not recommended as part of the diabetic diet. Based on these restrictions, many farmworking women concluded that social functions were not conducive to their efforts to control blood glucose levels and withdrew from attending social functions with family and friends and even spouses.

Participants perceived an altered state of family functioning resulting from dietary restrictions. In this case, farmworking women retreated from attempts to incorporate diabetes dietary recommendations into family meal planning and instead meal planning became dichotomous. Marital discord related to nutritional concerns and lack of spousal intimacy and sexual relations.

The ascribed meaning of diabetes influenced the way in which participants regard diabetes. These meanings were influenced by cultural beliefs about diabetes, familial

experience, personal biography, financial constraints, and family and marital discord. Diabetes was symbolized and defined by a family history of diabetes, complications, amputations and shortened lifespan. However, the lasting memory from narratives and familial experience, as well as personal biography had the most influence on participant's conceptualization of diabetes. For example, experiences farmworking women had caring for grandparents with latter stage diabetes complications, such as open wounds, was internalized, and participants drew upon these experiences as part of the meaning of diabetes.

Summary of Cultural Influence

Culture is a major contributor of how farmworking women in this study understood and construct meaning of their broader experiences with diabetes. The two areas where the influence of culture was most evident were causation and treatment strategies. The framework for the cause and treatment of diabetes was squarely constructed out of cultural beliefs, familial experiences and personal biographies. These practices helped farmworking women identify the unspoken hierarchy of illness for which medical attention is considered necessary as well as determine course of treatment.

Psychosocial Factors

Diabetes involved a psychological element in the lives of farmworking women. Participants reported increased anxiety and experienced unbroken fear resulting from diabetes. Feelings of anxiety surround (a) symptoms (b) dietary recommendations (3) financial constraints and (3) fear.

Symptoms

By and large enduring symptoms of high blood glucose created undue stress among participants. During times of uncontrolled diabetes women worried for their

health and perceived themselves to be in a weakened physical state. Depending on the symptom severity, participants reported anxiety about frightening their children and worried a weakened physical state would lessen their stamina and ultimately lead to a job loss.

Dietary Recommendations

As a group, farmworking women in this study did not fully understand the basic principles of the diabetic diet. Women reported anxiety about permitted and prohibited foods spanning all food groups and largely felt a sense of food deprivation. It is important to note that a large majority of participants reported not having enough food to eat while growing up. Farmworking women were continually cognizant of the diabetic diet and were particularly confused as to the exclusion of traditional foods in the diabetic diet. Furthermore, they reported not feeling satiated after meals. Lacking a clear comprehension of the diet and constant cravings for traditional meals led participants to perseverate about food and deprivation. As this internal struggle reached its peak, farmworking women succumbed to their cravings and indulged in preferred and traditional foods, and ultimately suffered symptoms of high blood glucose.

Financial Constraint

The financial constraints under which farmworking women live created high levels of stress among participants particularly in the area of diet and diabetes supplies. Dietary modifications include expensive fresh fruits and vegetable as well as modified cooking techniques and food preparation. Farmworking women in this study reported that it was not common place to eat fruits and vegetables or cook without lard; therefore, not only was it costly to adopt these modifications but many women struggled to acquire a taste for produce and cooking oil. Similarly, costly diabetic medication and testing supplies exacerbated the level of stress among participants. Farmworking women

continually struggled with tension about how to meet the expense of dietary modifications, medications and testing supplies without compromising their family's dietary needs and food preferences or exhausting the family budget.

Fear

Participants experienced underlying fear related to their health status. Women reported fear of developing other illnesses associated with diabetes, such as high cholesterol and heat disease, as well as a deep fear of lower extremity amputations. In most instances, participant's fears were based on family history and social encounters. That is, these fears were validated through the narratives of family members and social acquaintances having experienced concomitant illnesses and amputations. In some instances, physicians made attempts to use these fears to motivate participants to control their diabetes.

Summary of Psycho-social Influence

The psychological component of diabetes among farmworking women was largely based on stress and ability to care for the family. Given that a large majority of participants reported not having enough food to eat as children and their limited ability to purchase recommended foods, it is not surprising that the dietary restrictions created an undue amount of stress among women in this study. The diabetic diet was interpreted as jeopardizing the health and employment of farmworking women. Participants also construe the diet and diabetes itself as responsible for social isolation, family discord, and decreased intimacy with their husbands. Stress was also associated with an underlying fear of diabetes complications, especially lower limb amputations. The stress and fear associated to diabetes among farmworking women, in a sense, creates a situation where these women relive traumatic past events such as suffering from hunger or reminders of

family members suffering from the later stages of diabetes complications, namely amputations.

Unexpected Findings

During the course of this dissertation, several additional issues materialized that merit discussion. These issues include referrals to community agencies, informal discussion group, organizational changes at the local community center, and recent anti-immigrant factions. In addition, farmworking women in this study provided information about concomitant illnesses.

During the interview process two farmworking women became very emotional as they described their experiences living with diabetes. As they discussed these experiences they were overcome with emotion and cried. Both women cried about their fear of dying from diabetes. In these instances it was clear to me that these women had not previously verbalized these fears and for a short period of time the interview was stopped while they cried and elaborated further on their fears. Once they calmed, they were given information about possible services at the local mental health center in the community. After providing mental health information, the interview was resumed.

It was also apparent that farmworking women were very motivated to learn about diabetes. For example, I was scheduled to meet one woman at her home in rural Patterson for the interview. Upon arrival, she informed me that she had invited several of her diabetic friends to attend the *platica* (talk) because she wanted them to have more information about diabetes. Her friends arrived and we sat outside under a tree and they shared their experiences with diabetes with me and each other. These women appeared very comfortable with the exchange of information and were disappointed that I was not providing a diabetes education session. Even though I explained that the meeting was an

interview and not a *platica* the women stated they would like to stay because they felt they could learn something about diabetes from the interview.

During the last year the community center experienced a major restructuring and location change. This change seemed to make a difference among farmworking women as they mentioned it during the interview. Prior to the structural changes, the community center was its own entity and located in its own office. The diabetes educator served as a "one man show" filling the office manager, receptionist, community developer, and advocate position. Farmworking women were very trusting and relaxed when interacting at the center. However, the reorganization provided the community center with a new office that is housed in a larger organization. The new office houses other service providers that included children's services, housing, teen advocacy, and mental health. While the diabetes educator remained a "one man show" for the community center, she no longer received them as they entered the center. Furthermore, the office does not have stable hours and no longer stayed open past 5:00 p.m. As a result, community center services were not as utilized as they had been in the previous location. Furthermore, the reorganization, new location, new personnel and inconsistent hours created a situation among farmworking women where they looked elsewhere for the information they once received from the community center.

Finally, a large majority of participants shared their conceptions about the recent "minute man" factions along the Arizona and Texas /U.S. border. While these women experienced some fear about deportation, they were largely angry at the way news media portray their fellow countrymen. They perceived the media's depiction of illegal Mexican immigrants as drug dealers and those who beg for money on the street corners of larger cities. The women who raised this concern suggested that the media go to the larger cities and see who is begging for money and food on the street corners. She reported it was

Americans (White) who were begging and not farmworkers. These women were clear that they worked to provide for their families and do not accept public assistance, much less beg on the street corners. This anti-immigrant sentiment affected other aspects of their life as well. Specifically, farmers no longer wanted to provide housing for Mexican farmworkers and these women blamed news media depictions and anti-immigrant sentiment. They also expressed heightened fear of immigration officials, in general, and concern about their legal status being revoked as a result of this movement.

Through the course of this study, farmworking women discussed their perceptions and meanings about diabetes and voluntarily reported experiencing other concomitant illnesses. It is important to include these illnesses because the illnesses reported increase diabetes complications and death among farmworking women. These illnesses include those that are commonly associated with diabetes, such as high cholesterol, hypertension, and cardiovascular disease, other illnesses, and gynecological health problems requiring surgery.

Participants also volunteered information on other illnesses. Farmworking women reported experiencing anemia, arthritis, depression, embolism, kidney stones, and ulcers. Of considerable concern among these illnesses is the occurrence of embolisms. The farmworking woman who reported this occurrence stated experiencing three episodes of embolism; although she did not elaborate on the type or site. However, she did state when the embolism happened her face was crooked and a portion felt numb. It is not clear whether or not this participant sought medical treatment for this condition, though it is likely she did not. An embolism is an obstruction of an artery (obstructs blood flow) by a clot of blood or air bubble. Depending on the site of the embolism, a stoke may result from a cerebral embolism and gangrene from a lower extremity (The Bantam Medical Dictionary, 1990, p. 140). It is important to note that the symptoms this worker described

are consistent with another serious condition called Bell's Palsey. The symptoms of Bell's Palsey include facial paralysis on one side of the face. The cause of this condition is unknown and recovery occurs spontaneously (The Bantam Medical Dictionary, 1990, p. 44).

Similar results were found in the pilot study I conducted as part of this dissertation study. In this pilot study 43 percent (3 of 7) of farmworking women reported facial paralysis on one side of the face and interpreted this illness as an embolism. It was also unclear whether or not participants sought medical attention for this condition. Participants reported that the facial paralysis and numbness went away after a period of time. This finding is important because it suggests that diabetes may be associated with facial paralysis among farmworking women. More importantly, this finding suggests additional risk factors and increased mortality among diabetic farmworking women.

Study participants also reported gynecological health problems, which subsequently required surgery. Several farmworking women reported ovarian cysts, undergoing a hysterectomy and removal of a benign mammary cyst. Finally, several participants reported depression as a result of diabetes and one participant reported taking anti-depressants for this condition. Additionally, this same person also reported having made one previous suicide attempt.

Summary of Unexpected Findings

Farmworking women in this study were very forthcoming about the impact of diabetes in their lives. Several women were overcome with emotion at a point in the interview and required referral to a local mental health center. Further, these women identified additional illnesses, such as high cholesterol, hypertension and cardiovascular disease, which have the potential to increase mortality rates among this population. In addition, depression and suicide attempts may also increase mortality rates among this

population. These unexpected findings provide an even clearer picture of diabetes and risk factors among by this population. Specifically, based on these unexpected findings it appears farmworking women are at greater risk for diabetes related deaths.

Chapter Six: Discussion

In this dissertation, I explored the lived experiences of type II diabetes among Mexican American farmworking women. This experience was captured by asking respondents to (a) identify how they know when they are sick, (b) discuss their ideas about the causes of diabetes, (c) describe their treatment strategies, and (d) describe how they perceive diabetes in their lives. This discussion section will address each category separately. This chapter relates the findings to the literature review and conceptual framework guiding this study. Even though family function was not a primary focus of this study, it emerged as a theme. Farmworking women in this study also voluntarily provided information on concomitant illnesses. Therefore, these areas will be addressed in this section followed by a discussion about unexpected findings, implications for social work practice and future recommendations and conclusion.

How Farmworking Women Know When They Are Sick

Early detection is important in preventing the onset of short-term and long-term diabetes complications. Participants in this study identified both classic symptoms of poor glucose control, such as dry mouth, increased thirst, fatigue, frequent urination and symptoms of prolonged high blood glucose such as, blurry vision, nausea, itchy hands and feet, and burning sensation in feet as a function of diabetes. Many studies report that Mexican Americans identified medically recognized symptoms of diabetes. Findings from a study conducted by Coronado and collaborators (2004) show that participants reported classic diabetes symptoms and often recount symptoms in terms of practical experiences. For example participants described feeling dizzy as “feeling drunk in the head”. Studies by Valenzuela et al. (2003) and Coronado et al., (2004) also show

participants describing their symptoms in accord with medically recognized diabetes symptoms.

However, being able to describe both short and long-term biomedical symptoms of diabetes does not necessarily mean that participants understand the symptoms in the same context. In this dissertation, farmworking women reported diabetic symptoms related to neuropathy (nerve damage), retinopathy (retina damage), and even diabetic nephropathy (kidney damage) but were unable to distinguish between classic symptoms, such as dry mouth, excessive thirst and frequent urination, and those associated with damage from prolonged blood glucose, such as feeling faint, itchy hands and feet, and blurry vision. Jezweski & Poss (2002) found similar results. These researchers studied 22 Mexican Americans with type II diabetes living along the United States-Mexican border. Their found that even though participants could identify symptoms of diabetes, they were not necessarily able to distinguish between classic and more severe symptoms. When participants were asked about symptoms of hyperglycemia they provided a vague description of symptoms of high blood glucose. This important finding lends credence to Kleinman's (1980) conceptual model, which suggests that the biomedical model is inadequate as a practical guide to clinical care because it does not take into account common interpretative conflicts (p.103). In accord with Kleinman's model, participants in this current study interpreted *susto* (fright) as the most important factor in the onset of diabetes. It is worth mentioning that although prolonged symptoms alone did not result in seeking medical attention, severity of symptoms and external manifestations such as wounds that were slow to heal did provoke farmworking women to seek medical attention. This dissertation suggests that participants lack knowledge about what constitutes early warning signs for serious complications of diabetes. The seriousness of symptoms alone suggest that providing a more complete picture of diabetes and

symptomology may be especially important in health education for this at risk population.

Beliefs about the Causes of Diabetes

Multigenerational legacies and stories shape a family's health beliefs and response to illness and treatment. Further, these legacies and stories convey health beliefs and illness and treatment patterns across generations (Scollan-Kokiopoulos, O'Connell & Walker, 2005). This dissertation shows that farmworking women's beliefs about diabetes were overwhelmingly influenced by cultural beliefs and traditional practices as well as familial history, social interactions, and personal biography. Kleinman (1980) maintains that personal and family beliefs and experiences are powerful influences on a person's attention to and perception of the early manifestation of disease (p.75). Participants confirmed their beliefs through their narratives of family history and social acquaintances. Many studies in have shown similar results. Mercado-Martinez and Ramos-Herrera (2002) examined the layperson's theories of diabetes causality drawing on a sample of 20 participants from Guadalajara, Mexico. They reported that participants supported their theories about the causes of diabetes through explanations about its origin based on beliefs of their domestic group, which includes relatives and neighbors with similar experience and explanations. Similarly, Hunt, Valenzuela, and Pugh (1998) showed that the core of participants' understanding about what causes diabetes are personally relevant events and circumstances related to their life. However, my dissertation findings depart from these studies in an important way. Largely, farmworking reported *susto* as the primary cause of diabetes, while participants in both Mercado-Martines and Ramos-Hererra (2002) and Hunt's et al. (1998) studies did not identify *susto* as causing diabetes. Rather, participants identified a set of emotions related to personally relevant events as the cause of diabetes. Mercado-Martinez and Ramos-

Herrera (2002) address this departure as they report that the *susto* syndrome has not been documented in Guadalajara's urban population. In contrast, Weller et al. (1999) sampled four diverse communities in Connecticut, South Texas, Guadalajara, Mexico and rural Guatemala; only the sample from Guadalajara identified *susto* as the cause of diabetes. Similarly, Jezewski & Poss (2002) found *susto* described as the cause of diabetes in their study of Mexican American's explanatory models of type II diabetes.

This study showed that farmworking women reported unique ideas about the causes of diabetes and these ideas were linked with culturally specific illness and genetic schemes. A key finding of this dissertation research relates to the dual health systems under which farmworking women conceptualize diabetes and glucose maintenance. As previously discussed, participants provided a preliminary sketch of the physiological process occurring as result of *susto.* Participants' identified a transformation of blood and subsequent destabilization of the pancreas as a function of cultural beliefs and western biomedical medical concepts. It is important to note that, thus far, this finding has not previously been identified in the literature

The notion of heated blood is related to a model of health and illness based on Hippocratic theory. The concept of illness is related to a hot/cold internal equilibrium. Illness occurs when the body's internal equilibrium is out of balance (Martaus, 1986). Among Mexican immigrants, blood is considered a vital force within the body. It must be strong and in balance with other elements of the body. Weakness of the blood is an indicator of illness (Ailinger, 1988). The underlying concepts of the pancreas identified by participants are not too far from the actual function of the pancreas. Type II diabetes usually begins as insulin resistance, where the cells do not use insulin properly. As type II diabetes progresses, pancreatic insulin deficiency occurs.

Farmworking women attempt to synthesize their understandings about blood and the function of the pancreas as it relates to the onset of diabetes. Based on these understandings, farmworking women have developed a conceptual model, in this case an explanatory model, of the physiological processes that occur at the onset of diabetes. While these conceptions are not totally accurate, they are not totally inaccurate either.

Farmworking women conceptualizations of the physiological process lead to expectations about maintenance and treatment strategies. For example, women expect dietary recommendations to include cultural practices and traditional foods that enrich their blood and strengthen their pancreas. When these expectations are not met, farmworking women take a proactive approach and find solutions to meet expectations. In this case, the inclusion of protein powder and additional supplements to clarify the blood and replenish vitamins lost due to dietary restrictions is a direct result of their expectations.

How farmworking women describe diabetes and approach treatment practices provides a "map" of their rational thinking as well as an intersection where western medical practices can be incorporated into their notions about how diabetes works in their system. By further investigating their explanatory model about the physiological process of diabetes, social workers and health care providers can identify additional intersections where cultural beliefs and explanatory models can join together with western medical conceptualizations of diabetes treatment and maintenance strategies to create unified diabetes maintenance and treatment strategies. In this model cultural beliefs and practices will need to be viewed as complementary to western medical practices rather than contradictory.

Also important are the findings regarding differing definitions of heredity, and high blood glucose, which have not been previously identified in the literature.

Farmworking women in this current study explicate their thinking about the function of heredity as it relates to diabetes and risks of getting diabetes.

Farmworking women reported a complex, and concrete conceptualization of heredity. These conceptions define heredity as all inclusive and chronologically ordered illness which spans several generations. In order for diabetes to be considered hereditary, each member in each generation must have the disease and each member must have been diagnosed in sequential birth order. For example, participant's grandparents must have an onset of diabetes before their parents; although farmworking women did not distinguish the sequential order of diabetes among grandparents, that is, whether the grandfather (if older) had to have an onset of diabetes prior to the grandmother or vice versa. Participant's parents must have been diagnosed with diabetes before participants were. In addition, participant's parents must have an onset of diabetes in sequential birth order, and uncles and aunts must have an onset of diabetes in sequential birth order. In the participant's generation, this rationale for heredity is continued. In order for farmworking women to consider diabetes as hereditary, older brothers and sisters must have received a diagnosis of diabetes prior to younger siblings.

Findings from a study conducted by Hunt et al. provide minimal support for this finding. In their study, the concept of heredity was popularly understood by participants; however, they were unclear as to why some people in a family suffer from diabetes while others do not. This dissertation suggests that farmworking women's conventional or common knowledge about diabetes and risk factors among diabetes patients is inaccurate. This finding is particularly important in light of the fact that heredity plays a substantial role in the onset of diabetes. The importance of fully understanding the definition of heredity in preventing or even delaying the onset of diabetes and the strong influence of personal explanatory models of diabetes is another reason to include cultural beliefs and

traditional treatment practices as a collaborative approach to diabetes management among farmworking women. Lacking a clear understanding about farmworking women's conceptualization of heredity it is unlikely that health care professionals can understand the decisions farmworking women make about diabetes and treatment or assist this population with diabetes maintenance.

Farmworking women in this study also define high blood glucose levels that are substantially higher than the levels recommended by American Diabetes Association (ADA) (1999). The reason for this higher glucose levels is not clearly explicated through participant narratives; although misinterpreting symptoms may be one explanation. Further, the cultural role of women meeting familial needs before personal needs may also contribute to women's tolerating higher glucose levels, simply because farmworking women wait longer to seek medical attention. The longer they wait to seek medical attention, the longer period of time they have to grow accustomed to symptoms until symptoms become normalized at higher levels. Recommending glucose levels of less than 120 mg/dL could cause farmworking women to experience symptoms of hypoglycemia and related consequences.

The ADA recommends blood glucose levels before meals of 80 to 120 mg/dL and before bedtime of 100 to 140 mg/dL; however, glucose levels that average <120 mg/dL are considered normal. A higher number reflects a greater amount of glucose in the blood stream and an indication of poor glycemic control. The ADA defines blood glucose levels of 250 mg/dL as high. If blood glucose levels reach 350 mg/dL, the ADA recommends immediate contact with primary care physician; when blood glucose levels reach 500 mg/dL, the ADS advises emergency medical contact. Extremely high blood glucose levels can induce coma and even death.

Participants clearly identified blood glucose levels that they believe are normal, high, and excessive. They defined normal glucose levels at 220 mg/dL; high glucose levels at 380 to 400 mg/dL, and excessive glucose levels at 500 to 700 mg/dL. Participant's conceptualization of normal blood glucose levels is substantially higher (100 mg/dL) greater than ADA recommendations. While farmworking women identified high blood glucose levels that were similar to those outlined by the ADA, they did not express a need to seek medical advice at this level. Similarly, participants identified excessively high blood glucose levels similar to those outlined by ADA but they did not explicate that this level constituted an emergent situation. One participant was rushed to the hospital for excessive glucose levels, but only after she was tested in her physician's office.

Several researchers reported similar high blood glucose levels among Mexican study participants. Valenzuela and collaborators (2003) conducted a study on knowledge and beliefs about type II diabetes in rural Mexico. They monitored participant's blood glucose levels using a Lifescan One-Touch glucose monitor that was recalibrated frequently throughout the study to ensure accuracy. On average blood glucose levels in their sample were very high, with fasting glucose level at 201 to 216 mg/dL. Similarly, Brown, Harriet, Villagomez, Segura, Barton, and Hannis (2000) found high rates of blood glucose in their study on knowledge and health beliefs and glycemic control among Mexican Americans with type II diabetes. They determined glycemic control based on a hemoglobin A1c test, which is considered the best measurement of blood sugar control (Emedicine, 2003). These researchers noted that participants expressed a lack of concern over their diabetes. High average blood glucose levels were also reported by farmworking women in a pilot study I conducted. The women in the pilot study self reported an average blood glucose level of 298 mg/dL. Rather than prescribing universal

goals that may not be realistically achieved, health care providers should take into account average blood glucose levels among farmworking women as well as beliefs and expectations about medication when identifying target glucose goals

Treatment Strategies

Mexican Americans come from a country with a deeply ingrained history of using herbal remedies and these persons with diabetes use herbs to treat themselves (Poss, Jezewski & Stuart, 2003). This study shows that farmworking women prefer culturally influenced treatment strategies but were not opposed to incorporating biomedical treatment strategies and beliefs into these practices. In fact, a large portion of this sample reported taking prescribed diabetes medication in combination with traditional home remedies; although, it is important to point out that many participants reported taking medications on an intermittent basis. A majority of participants in this study were unable to name their diabetes medications. It was not uncommon for them to bring out their medications to show what they were prescribed. Largely, farmworking women understood that prescribed medication served to reduce blood glucose levels.

This strategy of combining traditional home remedies and western medicine among farmworking women may be the function of expectations of medication and medical practice and a good faith effort to incorporate western medicine into traditional treatments, but without an intellectual understanding of the pharmacology of the medicine (Pylypa, 2001).

Farmworking women's expectations of western physicians and medications may be based on medical treatment practices in Mexico, where treatment is expected to include strong, fast acting medication, nominal laboratory tests, and minimal paperwork (Mines, Mullenax and Saca, 2001). Further, data Mines et al.'s study showed a belief that U.S. medications were less potent than medications from Mexico. These results are

supported by Martaus (1986) who reported optimal treatment outcomes among Mexican American farmworkers were those treatments that were quick and effective in reducing symptoms. In this case, the practice of combining traditional home remedies and western medication can be seen as a method for increasing the strength and efficacy of western medicine in reducing symptoms of high blood glucose.

Secondly, exposure to western medical practices may also influence the use of combined traditional and western treatment strategies among farmworkers. In an attempt to incorporate western medicine into cultural treatment practices and beliefs, farmworking women adopt tenets of biomedicine as good faith without fully understanding the action of the medication on the body.

These findings are similar to findings reported by Poss, Jezewski & Stuart (2003), whose results show that Mexican Americans living on the US-Mexico border in El Paso, Texas, integrate both biomedical and traditional treatment strategies in diabetes management strategies, and had a rudimentary understanding of how diabetes medication work in the body. For example, participants reported oral medication was "something like insulin." Other participants in their study reported an understanding that oral medication helped the pancreas to produce more insulin. Similarly, participants in their study identified the overall effect of medication was to reduce blood glucose levels, rather then a mechanism to maintain glucose levels. However, Hunt, Arar and Arkana (2000) suggest that traditional attitudes and beliefs were not particularly important to low-income Mexican Americans in their study on alternative treatments among diabetes. This may be due to the fact that participants were actively receiving clinical treatment for diabetes. Though participants in this study reported a preference for biomedical treatment strategies for diabetes, the study suggests they used them intermittently due financial restrictions and cultural preferences. These findings are particularly important in light of

the fact that taking medications on an intermittent basis increases risk of diabetes related deaths by 66 percent over a seven year period (Markides, Ray, Espino & Goodwin, 2003), and an inability to name medications increases the risk of dangerous medication interactions. Identifying home remedy ingredients and preferred cultural treatment strategies can help us to understand how farmworking women conceptualize treatment and understand the function of western medicine among this population.

Results from this current study identified diet as particularly confusing and difficult to follow. Data show that farmworking women do not understand the basic tenets of diabetic dietary recommendations or why preferred traditional foods are prohibited and how certain foods convert to glucose. Rivera-Adams (2003) reported that Latinas were obsessed with diet, and were particularly conflicted by the restriction of cultural foods in the diabetes dietary recommendations. Oomen, Owen and Suggs (1999) report that dietary recommendations call for the inclusion of expensive foods women with low incomes cannot afford, making it difficult for them women to meet dietary recommendations. Further, these researchers suggest that diet should be viewed as cultural. Oomen and collaborators report that Hispanic women may view dietary changes as selfish, burdensome to the family budget and inconsequential to the family's wellbeing.

Perceptions and Meaning of Type II Diabetes

In an attempt to understand how farmworking women make meaning of their experiences with type II diabetes, Kleinman's (1980) explanatory model of illness guided this study. Kleinman's model posits that perceptions and meanings of illness are culturally influenced and exposure to western medical practices plays a role in adapting perceptions about illness. Farmworking women in this study based their

conceptualization of type II diabetes on an ethno-cultural foundation, which is most prevalent in the areas of causality and treatment strategies.

Ethno-cultural foundations of illness are based on ethno-specific illnesses which are health outcomes that are self identified within a belief system of a specific ethnic group, in this case farmworking women (Diagnostic and Statistic Manual of Mental Disorders, 1997; Thompson & Wiggins, 2003; Mines, Mullenax & Saca, 2001). Ethno-specific illnesses are used to understand illness episodes, and they are primarily stress and trauma based. The causes of diabetes were based on a system of local knowledge, which comprises the collective wisdom of generations of experience and is a factor in common sense ideas about the world (Greene, 1999). These multigenerational legacies of diabetes represent what is learned by witnessing a family member's experience with diabetes (Scollan-Koliopoulos, O'Connell, & Walker, 2005). In identifying the cause of diabetes, participants in this study assimilated familial experience, social acquaintances, and personal biography. In addition, farmworking women incorporated biomedical language as they identified the cause of diabetes; although, they may not have fully understood the true definitions of the language.

Alcozer (2000) identified a similar system of knowledge. Findings from her study of Mexican American women and perceptions about diabetes show that diabetes was viewed as symptoms which were developed from the contextual arena of family and community. Supporting these findings is a study conducted by Jezewski and Poss (2002). In their study, participants constructed perceptions of type II diabetes based on causes, symptoms, treatment and social significance, and each component contained elements of traditional beliefs and values as well as biomedical beliefs. In a recently published study, Heuer and Lausch (2006) sampled Hispanic migrant farmworkers from migrant health centers about their perceptions of living with diabetes. Findings showed that migrant

farmworkers identify biomedically recognized symptoms of diabetes but they did not understand that diabetes was a chronic condition. It is likely that participants in their study did not know the meaning of the term chronic. Further, farmworkers in their study discussed how diabetes symptoms impacted family relationships, influenced their employment, affected intimate relationships, and related symptoms to the potential threat of divorce.

What is unique about this present study is the conceptualization farmworking women have about the physiological changes that occur within the body that results in diabetes. These findings have not previously been reported in the literature. Farmworking women in this study had ideas about sickness that were based on a common sense understanding of the body functions. This was evident in the physiological explanations posited by farmworking women. Participants essentially pieced together the process based on their cultural knowledge about the structures of blood and their understanding about pancreatic functions. These results suggest that farmworking women are motivated to better understand diabetes, taking into account both health belief systems. This can be seen as a boundary where both belief systems intersect. This intersection provides an opportunity for both systems to create a reciprocal relationship with the common goal of providing a complete description of how diabetes functions in the body as well as appropriate, culturally meaningful treatment.

In this present study, farmworking women lacked basic knowledge about the diabetes, genetic functions, and diet and had differing models of illness than the standard western illness model. This lack of knowledge may create a situation of confusion about diabetes and a defensive posture, rather than a preventative approach towards diabetes maintenance. Unfortunately, attempting to understand and synthesize diabetes based on incomplete information, influenced participants negatively and similarly impacted their

perception and interpretation of type II diabetes. Their definitions of heredity and high blood glucose are examples of incomplete information.

As previously addressed, farmworking women lacked a complete understanding of the meaning of heredity. Instead these women synthesized subjective perceptions and western medical influence to define heredity as chronological and sequential within generations. That is, the order in which family members "got" diabetes influenced whether or not farmworking conceptualized diabetes as heredity. Without an understanding of the true meaning of heredity, farmworking women do not have the opportunity to gain an understanding about precautionary measures that can be taken to delay or even prevent the onset of diabetes for themselves and their children. The definition of high blood glucose levels is another example of the consequences of incomplete information. Farmworking women did not understand the biological consequences of prolonged blood glucose levels or explicate recognition of warning signs of blood glucose levels that required medical advice, nor when to seek emergency medical treatment. Further, the synthesis posited by women in this study imparts important information about their expectations about medication and meaningful treatment strategies. For example, farmworking women may expect medications that would help to thin blood thickened as a result of diabetes. When expectations are not met, farmworking women may find it difficult to accept treatment and medical advice and may even perceive advice as not in their best interests. Developing diabetes education programs that address these issues is essential for farmworking women to be able to manage diabetes.

The expressions of language among farmworking women show how farmworking women structure their subjective experience with diabetes. Participants in this study largely described diabetes with words that could be used when describing a horror movie,

war or slow painful death. Overall, participants conceptualized diabetes as life threatening, and resulting in amputations and death. Similar conceptualizations are reported in studies conducted by Alcozer (2000) who reported diabetes as life shortening, and Coronado, Thompson, Tejeda and Godine (2004) who reported diabetes as a slow death.

This study supports longstanding findings some appearing as early as 1967 (Nall and Speilberg, 1967) that suggest the biomedical framework alone will not enable health care providers or social workers to provide care for farmworking women with type II diabetes or help them to understand the risk factors, warning signs, or prevent complications. It is essential to incorporate cultural health beliefs and treatment practices into biomedical models and include recognition that farmworking women are experience higher average glucose levels. However, it is even more critical to provide educational programs that provide fundamental information about the functions of diabetes, a full understanding of heredity and its associated risk factors, awareness of warning symptoms of prolonged glucose levels, and an understanding of the system of beliefs surrounding preventive health care and early detection for them and their children and subsequent generations.

Family Functioning

The impact of diabetes can be considerable, especially since type II diabetes requires tremendous lifestyle changes. Farmworking women must face decreased financial potential, loss of intimacy, dietary restrictions and an overhaul of traditional dietary preferences, and changes in family roles. Farmworking women in this study reported problems in family functioning and a lack of social support. These problems were related to dietary recommendations and ultimately effected diabetes maintenance and interfered with glycemic control among participants. Since this was not a major focus

of the study it was not always clear if family problems were already present prior to illness or subsequent to illness.

However, findings regarding the importance of social support for Mexican American diabetics have been mixed. Gleeson-Kreig, Bernal and Wolley (2002) found that social support in self management among Hispanic. Other studies show that strong family support has a positive impact on glucose control (Fisher, Chelsa & Skaff, 2000; Wen, Shepherd & Parchman, 2004; Lo, 1999).

The types of problems frequently reported by women in this study were conflict with children and interpersonal conflict with their husbands about changing food preparation methods and incorporating vegetables into the family diet. Results from a study by Ren (1997) show that health perception is heavily influenced by marital status and the quality of marriage; therefore marital discord may negatively impact glycemic control among farmworking women.

Family discord among children and spouses is important in light of the fact that the family plays a critical role in traditional Mexican American culture. This role, referred to as familism is one of the most important values among Mexican Americans families. It is derived from strong feelings of family loyalty, reciprocity and solidarity (Marin & Marin, 1991; Niska, 1999). Even though family is central in Mexican American culture, these values may be changing as a result of increased contact with U.S. mainstream culture. Further, given the roles of husbands and wives in traditional Mexican American culture, and the influence husbands have on health care decisions, a discussion is warranted to better understand the role these relationships have on diabetes and glycemic control.

Male and female relationships stem from longstanding cultural gender roles and these roles have defined gender-related behaviors for both men and women; where men

assume a dominant role and women assume an acquiescent role (Galanti, 2003; Marin & Marin, 1991). The dominant male role has also been characterized as machismo among Mexicans. While much has been written about machismo in the Mexican culture (Marin & Marin, 1991), it has mostly been a reiteration of less recent studies. Machismo has positive and negative associations. Machismo is negatively described as foolish pride, someone who can hold his alcohol, or one who is authoritarian. It is positively described as one with a strong work ethic, accepts responsibility, and is a good provider (Kemp & Kemp, 2001 Galanti, 2003). Women take the role as primary caretaker of the family, providing cooking, cleaning, and parenting. In this case, Mexican farmworking women have been characterized as being submissive to their husbands (Galanti, 2003). As such, any attempts to usurp decisions about food preparation may be considered disrespectful. This situation has the potential to upset cultural norms and be viewed as a lack of respect for cultural values. Given the importance of family among Mexican American culture, it is unlikely that farmworking women will take this posture with their husbands. Furthermore, if farmworking women are dominated by husbands who do not accept diabetes or provide support for the lifestyle changes necessary for glycemic control, then farmworking women may not be able to achieve healthy glucose levels as a result of machismo and obligation to cultural values and norms. Moreover, in relation to the issue of support, is the likelihood that farmworking women are separated from their family support system, such as parents and siblings (Galanti, 2003; Andrews & Boyle, 1999) because many have family members still living in Mexico. This separation from familial support systems combined with family discord may intensify feelings of isolation and stress among farmworking women. This is particularly important because of the relationship between stress poor glycemic control among diabetics. These unexpected findings offer additional support of the important role culture plays in health care

decisions and points to the benefits of including family, particularly spouses, in diabetes education and management strategies.

Summary of Family Discord

The family impact of diabetes was significant among participants. In particular, participant's children and spouses did not welcome dietary modifications and were particularly conflicted about modifications in traditional food preparation. This discord among between spouses, gender roles and cultural values and norms and a lack of social support play a significant role in health care decisions and glycemic control among farmworking women in this study. To the extent possible, social workers and health care providers must include spouses in diabetes education programs and acknowledge cultural values, norms and beliefs as a compliment to western medical diabetes education and diabetes maintenance programs.

Discussion about Unexpected Findings

Farmworking women in this study voluntarily reported the impact of anti-immigrant sentiment on their lives and other illness, beyond perceptions and meanings of type II diabetes. These illnesses included high cholesterol, hypertension and cardiovascular disease, as well as gynecological illness and depression. The impact of anti-immigrant sentiment is discussed in this section followed by a discussion of other illnesses, including gynecological illness and ending with depression.

Farmworking women in this study reported heightened fear of immigration and increased discrimination, which they perceived to be the result of the September 11th terrorist attack on New York, and the recent Minutemen Project that has surfaced along the U.S. / Mexico borders in California, Texas, and Arizona. Since the occurrence of these events, farmworking women report employers are less willing to provide housing as

part of employment and employers are less willing to re-hire farmworkers for subsequent seasonal employment.

The recent Minuteman Project originated in Arizona to protect the U.S. border against the infiltration of illegal immigrants (CNSNews.com, 2006). The Minutemen Project characterizes illegal immigrants as ubiquitous, drug dealers, criminals, and taking jobs away from Americans (CNSNews.com, 2006; Barry, 2005). To a large degree this faction characterizes illegal immigrants as illegal Mexican farmworkers who are a drain on the U.S. economy, and a threat to national security (Barry, 2005)

However, there is some debate over the question of whether or not illegal workers hurt the U.S. economy. Immigrant advocates state that migrant workers fill the jobs Americans refuse to take (Katel, 2005). In Arizona, for example, these workers are a huge boost to the economy. Veranes and Navarro (2005) report immigrants paying annually $300 million more than they receive in services. Given the anti-immigrant sentiment resurgence in the United States it is no wonder that farmworking women experience increased fear of deportation and distrust.

Women in this study also experienced high cholesterol, hypertension, and cardiovascular disease. These illnesses are often complications of diabetes and increase mortality rates among diabetes, in this case farmworking women. Other researchers have reported similar concomitant illness among farmworkers. Rodriguez, Toller, and Dowling (2003) report a large majority of women in their study had elevated cholesterol and hypertension in their report on the health of farmworkers in California. In a pilot study conducted as part of this dissertation study, I found similar results. Participants in the pilot study reported high blood pressure (57%0 and high cholesterol (57%) and suffering embolisms (43%). Concomitant illness among farmworking women was reported by Bechtel, Shepherd and Rogers (1995). In this study farmworking women reported

hypertension and urinary tract infections. Poor nutrition and stress may be contributing factors to increased cholesterol and hypertension among farmworking women. In a binational survey of agricultural workers in California, Villarejo, Lighthall and Williams, et al, (2001) reported high incidence of hypertension and heart disease among agriculture workers.

What is particularly alarming about heart disease is that it is the leading cause of death among Mexican women in the United States (Juarbe, 1998), claiming the lives of 500,000 women each year (New York Amsterdam News, 2005). Heart failure is five times more common in diabetic women ages 45-74 than men (Bell, 2003). In a recent study on congestive heart failure in type II diabetes, Nichols, Guillion, Koro, Ephross and Brown (2004) report that patients with diabetes are much more likely to develop heart failure than patients without diabetes. Further, Guillon and collaborators report that diabetes increases and accelerates the occurrence of heart failure and poor glycemic control is a risk factor for heart failure. These findings suggest that the health status of farmworking women, beyond type II diabetes, is severely compromised and life expectancy rates may be even lower for a diabetic farmworking women with high cholesterol, hypertension and cardiovascular disease.

Gynecological health issues were also reported by farmworking women; namely, ovarian cysts, hysterectomy and mammary cysts. Although participants did not report gynecological malignancies, these issues are of concern because of the elevated rates of cervical cancer among Mexican farmworkers. Boucher and Schemer (2002) report the incidence of cervical cancer among Mexicans in California (18%) and mortality rates (5%) are greater than that of other ethnic groups, such as Blacks, Whites and Asians. However, these researchers point out that since farmworking women are likely to be underrepresented in Cancer Registry data, the actual incidence of cervical cancer may be

even higher. These rates have been attributed to lack of early screening and seeking medical attention in the latter stages of cancer. While cancer incidence and mortality among farmworking women are not exact, Coughlin and Wilson (2002) remind us that socioeconomically disadvantaged groups often have low cancer survival rates.

Finally, during the course of this study, several women were referred to mental health because of their emotional response to the interview and expressions about fear of death and amputations related to diabetes. One farmworking women reported an actual suicide attempt. In light of research that links diabetes complications to depression and suicide risk factors among farmworking women. This is an important area that warrants discussion.

Diabetic neuropathy is a condition where the nerves of the lower extremities are damaged as a result of prolonged blood glucose in the blood. This condition leaves diabetics with tingling and burning feet that are often painful. While farmworking women in this study did not specifically report suffering neuropathy, the symptoms many described are consistent with this type of nerve damage. Diabetic neuropathy affects up to 50 percent of diabetics and has been associated with depressive symptoms. Vileikyte, Leventhal, and collaborators (2005) conducted a study on neuropathy and depressive symptoms. Data from their study show that diabetic patients with long term complications and concomitant medical disorders report more depressive symptoms. Those with more severe neuropathy symptoms, such as reduced feeling in the feet, had higher depression levels. It may be the case that farmworking women experience difficulty managing concomitant illnesses as well. The serious nature of the high cholesterol, hypertension, and cardiovascular disease is even more reason for further research on farmworking women's health in addition to type II diabetes.

The connection between depression and suicide among farmworking women is important to address. Hovey and Magana (2003) conducted a study to access predictors of depression and suicidal ideation among farmworking women in the Midwest United States. Findings from this study show that family dysfunction and ineffective social support were significantly related to high depression levels. Farmworking women who experience suicide ideation had lower self-esteem, greater family dysfunction, and less social support than farmworking women who did not experience suicidal ideation. The present study suggests that female farmworkers may be at risk for depression and suicide ideation.

Summary of Unexpected Findings

Farmworking women reported increased discrimination as a result of recent terrorist attacks and the Minutemen Project. The consequences of discrimination manifested in the lack of employer funded housing and job security. As a result, farmworking women are in an even more financially strained circumstance. It is likely that these women are unable to purchase enough food, expensive diabetes medication or testing supplies on a regular basis. The current anti-immigrant climate leaves farmworking women with feelings of increased distrust of governmental agencies, and fearful of deportation. Social workers and health care providers will need to take the issue of trust into consideration as they begin working with farmworking women to develop culturally sensitive and meaningful diabetes treatment strategies and find ways to dispel fears of deportation among this population.

Farmworking women reported other illnesses that have been reported as diabetes risk factors. These illnesses have been associated with increased risk of heart failure and even death when untreated. Gynecological health problems were also identified, and while farmworking women did not elaborate on whether or not gynecological problems

were malignant, it is an important finding because these data adds to the body of knowledge on gynecological illness prevalence among farmworking women.

During the course of this study, several women were referred to mental health treatment for feelings of depression associated with diabetes and complications. Only one participant reported a prior suicide attempt. Findings from recent studies indicate that farmworking women may be at risk for increased depression and suicide ideation as a result of stress and family functioning problems. These findings are important because taken together, concomitant illnesses, gynecological illness and depression place farmworking women at even higher risk of complications and even death.

Implications for Social Work

This study has implications for social work and other health care professionals working with farmworking women. The findings from this study highlight the fact that type II diabetes affects family functioning and physiological changes as well as increased financial burden due to the cost of medication and testing supplies. Given the nature of diabetes, its escalating presence and patient dependent regimen, social workers have opportunities to improve the lives of farmworking women (DeCoster, 2001) in the areas of psychosocial assessment, case management, and family. But first, social workers must accept and familiarize themselves with the worldviews held by farmworking women and become knowledgeable about their cultural beliefs and health practices. Additionally, social workers must consistently inquire about cultural approaches through psychosocial assessment. Further, they must accept and incorporate cultural practices as well as spouses into educational programs and treatment practices.

Psychosocial Assessment

The goal of psychosocial evaluations is to develop a composite of a person and their specific needs. In order to gain a better understanding about the needs of

farmworking women, social workers should consult with trusted members of the community where farmworking women live. These trusted members may be able to highlight sensitive needs that the women may not otherwise address. It may be the case the farmworking women would feel more comfortable with a trusted community member as part of the assessment team. With the permission of women, social workers should consider conducting assessments in the women's home. Whenever possible, social workers should be bicultural and bilingual because a large majority of farmworkers are monolingual in Spanish and the ability to converse in the client's language enhances the quality of communication and information elicited.

Case Management

Given the high cost of diabetes medication and testing supplies in combination with farmworkers limited financial resources, social workers are in position to employ case management strategies to address these issues. With longstanding and knowledge of community resources, social workers can identify relevant resources and access medication assistance programs to provide low cost or gratis diabetes medication and access financial assistance programs to offset the cost of diabetes testing supplies. As case managers, social workers can also facilitate access to those programs in the case of language barriers or feelings of discomfort among farmworking women. Furthermore, social workers can locate nutritional programs that can provide healthy food and nutritional education specific to diabetes dietary recommendations.

Family Education

Given the changes in family functioning reported by farmworking women, social workers can assist family members to understand diabetes and the impact it has on the family and family functioning. It is important for children and spouses to understand what their family member experiences as a result of diabetes as well as acknowledge the

impact diabetes has on individual family members. Where family problems are identified counseling should be directed at those problems. Restoring family functioning and resolution of problems could reduce stress and improve glycemic control among farmworking women. In light of the fact that farmworking women appear to have a general mistrust of agencies associated with immigration, it will be necessary for social workers to provide family education in non-conventional ways. For example, meeting with the family in an environment of comfort could embolden families to come forth with presenting problems. During this dissertation study I found that farmworking women felt comfortable with small gatherings and interviewing while sitting on lawn chairs under a tree.

Recommendations

This study was guided by Kleinman (1980) explanatory model, which posits that perceptions and meaning of illness are culturally influenced and exposure to western medical practices play a role in adapting perceptions about illness. Farmworking women were not opposed to using strategies from both traditional and western health systems; however, there remains a gap of knowledge about the basic fundamental structures of diabetes and how to incorporate both. Providing diabetes education in small informal groups should be considered as social workers and health professionals tackle diabetes management among this population. The findings of this highlight the need for diabetes education in several areas requiring further exploration.

Diabetes education programs need to focus on the basic tenets of diabetes that outline definitions of heredity and both classic symptoms of diabetes and warning symptoms of prolonged blood glucose. Understanding genetic and environmental risk factors are essential components in diabetes management, thus, it is crucial that farmworking understand the full definition and conceptualization of heredity and how it

relates to increased risk of developing diabetes. Being able to make distinctions between symptom type and severity will help farmworking women make decisions about when to seek medical attention and reduce risk of serious diabetes complications.

Farmworking women are actively participating in dual health systems and attempting to incorporate both systems into their understanding about the function of diabetes. This is evident in their integration of both cultural ideas about the body and western medical language in their conceptualizations about the physiological change that ultimately causes diabetes. Educational programs will need to address these functions and provide a complete outline of these functions using language and concepts familiar to farmworking women. Practitioners cannot assume that definitions of heredity, high blood glucose, insulin, and pancreatic functions are common knowledge among the farmworking women. The cultural definitions farmworking women hold must be explored further and used to compliment western medical definitions so that their understanding will be enhanced. More research will be needed to explore physiological processes to identify how their ideas about pathology are translated into diabetes maintenance and treatment expectations. Further, enlisting alternative approaches may be useful to engage participants in their own health care plan.

Study findings also suggest that farmworking women sustain glucose levels that are higher than what is recommended by medical practitioners. Rather than recommend glucose levels of less than 120 mg/dL as a model for maintenance, practitioners must titrate their higher levels, slowly, towards more safe glucose levels. Health care professionals should respectfully and reliably inquire about cultural approaches to illness and treatment, which will promote a more trusting relationship. Moreover, health care providers should advise farmworking women about any potential side effects of certain home remedy ingredient(s) or potential prescribed medication interaction affects. Further,

health care professionals must advise farmworking women about the impact diabetes has on sexual functioning and provide solutions that may help mediate this impact. Additional family therapy may be needed to address issues of sexual intimacy among farmworking women and their spouses.

Diabetes dietary requirements caused a great deal of concern, anxiety and discord among farmworkers and their families. Nutritional educational programs must take into account preferred traditional foods and base dietary recommendations around cultural foods. Nutritional educational programs must identify specific meal preparation techniques that incorporate traditional foods into diabetic dietary recommendations. Family must be included in nutritional education programs, particularly spouses, to help educate them about the important role nutrition plays in diabetes management and how they can enhance their partner's glycemic control. These education components will make farmworking women a part of the decision making team rather than a bystander in their treatment and diabetes management. These education components can increase the likelihood of achieving safer blood glucose levels and improve overall diabetes management among farmworking women with type II diabetes.

Finally, findings from this study indicate that Mexican American farmworking women accept the undulations of life and environmental changes as treatment strategies. They should not be labeled as fatalistic. Instead, social workers and health care providers should pay attention to how they manage their diabetes, which will lead to a better understanding of the importance of their cultural beliefs, treatment and strategies as diabetes education and maintenance programs are developed. Future research will need to focus on these areas to ensure the outcomes are beneficial to farmworking women and diabetes maintenance.

Future Research

There is a major gap in the social work knowledge base regarding diabetes and farmworking women. This qualitative study provided preliminary examination of the perceptions and meanings of type II diabetes among this population. The findings generated several suggestions for future research in the areas of diabetes knowledge, causes, treatment, and perceptions.

First, similar qualitative studies should be conducted to focus additional attention on the factors that influence perceptions and meanings of type II diabetes (e.g., knowledge, causes, treatment, education, nutrition, family dysfunction). Additional studies could help to validate themes and elucidate subjective diabetes constructs. Clarification of these constructs can illuminate more appropriate explanations about the relationships between these themes and type II diabetes. More studies are needed to understand the complexity of diabetes in the lives of Mexican American farmworking women.

Second, this study focused on an overlooked population of diabetic, Mexican-American farmworking women, and provided preliminary exploration of salient issues for this particular group. Additional studies on diabetic, Mexican American farmworking women are needed in order to generalize the results of this study to other groups of farmworking women. Conducting a replication of this study with Mexican American farmworkers with different demographics (e.g., age, length of time with diabetes, geographic area and males) could provide important information about potential differences within the population.

Third, although the intended aim of the study was to identify the cultural and psychosocial factors that influence perceptions of type II diabetes among this population,

more studies are needed in order to make comparisons between other racial/ethnic groups. These studies can provide insight into cultural differences.

Finally, there is a paucity of research on diabetes and family support. Research is needed to identify the role of social support among diabetics and the impact it has on family functioning. For example, the impact of diabetes on parental roles and marital functioning has emerged as a research interest from the present study.

Conclusion

This study identified several key findings that have not been previously examined, such as definitions of heredity, high blood glucose levels, dosing strategy and the physiological process that causes diabetes. The relationship between these variables has to do with diabetes education. At several junctures, farmworking women demonstrate a willingness to incorporate western medical strategies into their cultural practices; however they will require diabetes education program that provides a comprehensive explanation of diabetes and its functions in the body and incorporates cultural beliefs and practices rather than work against them.

Social workers have the potential to improve the quality of the lives of farmworking women with type II diabetes through well-established roles as educators, advocates, counselors, therapists, community developers and resource brokers (DeCoster, 2001). Therefore, it will be essential for social workers and health care providers to demonstrate a good faith effort and willingness to incorporate cultural beliefs and treatment strategies into western medical models.

About the Author

I was born in a small, rural agricultural town in California's San Joaquin Valley. I lived in the San Joaquin Valley for all my childhood, adolescence, teens and a portion of my adult life. Our family moved five times that I can remember and we ended up in Chowchilla, California, another small, rural, agricultural town where we lived on a farm.

I love this area of the San Joaquin Valley. To this day, the sight of a plowed field reminds me of our home on the ranch and the sweet well water we drank. This area reminds me of my brother's cow Stinky and my mother's pig Daisy. Chowchilla reminds me of the birth of my son, Andres, and it is where my parents were laid to rest.

My parents' death is the motivation for my interest in the health conditions of farmworkers, though I didn't know it when I began this journey. I didn't know lots of things about my parents, as I later found out.

My mother's name is Maria Jesus Fernandez Lopez. She was born in the United States. I am not entirely sure about whether or not my mother worked in the fields but I think she did not because she was able to graduate from high school. She loved to read, which may be why we had the World Book Encyclopedia set. I look like my mother; I have her personality and share her love of reading. After her death, I learned to cook like her, too. She died at the age of 39, when I was 16 years old. We were so young when she died. The death certificate says heart failure is what ultimately killed her, but it also said she had something wrong with her pancreas.

My dad's name is Jesus Sicarios Lopez. Like many farmworkers, my dad came to the United States in search of a better life. He came illegally, though I do not know if he paid a coyote to get him across the border. Somehow, I think he crossed the border on his own. He was young and strong when he came to the United States and worked the fields

picking cotton. At that time he picked cotton by hand. He lived in boarding houses in the rural areas where he worked. I'm not sure of the exact conditions of the boarding house, but I am certain they were very poor. As far back as I can remember my dad worked on a farm, but not as a farmworker. He drove tractors and other heavy equipment and supervised farmworkers during harvest. Essentially, he was a foreman but was not given the title or increased pay. My dad died of a massive stroke at the young age of 62 just days before he was going to retire.

Given my family history, it is not surprising that my interest in the living conditions of farmworkers has been the focus of my education and research. During my masters program at California State University, Fresno I conducted research on the living conditions of farmworkers in California's San Joaquin Valley. Through my research for my thesis I not only learned about farmworkers living conditions but I learned about my father's biography and the poor conditions under which he survived when he arrived in the United States in the mid 1940s and the effects of years working in and around pesticides. I related his shortened life to these factors.

During my doctoral program at the University of Texas at Austin I focused my interest specifically towards farmworking women and type II diabetes, and worked collaboratively with the School of Nursing. I chose this area of interest because diabetes is reaching near epidemic proportions among Mexican Americans and its consequences are severe, if not grave. Diabetes has even been referred to as a pandemic. I wondered what diabetes was like for farmworking women, who have been absent in research studies on diabetes. Through coursework and the data collection phase of my dissertation, I gained an understanding about how farmworking women experience diabetes and I learned about my mother, too. I learned that my mother had gestational diabetes during her pregnancy with my oldest brother. He weighed 13 pounds at birth. It is likely my

mother had diabetes but didn't know it. Given the pancreatic dysfunction listed on her death certificate, it's possible that her death was a result of complications of undiagnosed diabetes.

What this means to me is that my risk of developing diabetes has increased. I am in my mid 40s and a diagnosis of diabetes at this point in my life can decrease my life expectancy five to 10 years. Diabetes is a scary disease.

In a roundabout way, this dissertation has been a history lesson. I have learned about my parents through my education and about my own risk of developing diabetes. I have also learned my family history is not unique. Many farmworking families experience the heartbreaking premature deaths of their parents and increased risk of developing diabetes.

The personal and professional knowledge I have gained from this dissertation has been enlightening and even painful at times. Personally, I feel an eternal connection to farmworkers and a responsibility to making their lives better. Professionally, this experience has reinforced my determination to improve the health and quality of life for farmworkers and their families through scholarly writing and community action.

Appendix

Appendix A: Information Sheet

Research Project Name:	Perceptions and Meanings of Type II Diabetes among Mexican American Farmworking Women
Researcher:	Olivia Lopez, MSW, Doctoral Candidate, The University of Texas at Austin, School of Social Work. Home address: 128 Lakeview Drive Mathis, Texas 78368 (209) 345-3534 or (361)547-7894
Faculty Advisors:	Yolanda Padilla, M.S.S.W., Ph.D, Professor, School of Social Work, The University of Texas at Austin, 1925 San Jacinto, Austin Texas, 78712 (512) 471-6266 Gayle Acton, Ph.D, R.N., Associate Professor, School of Nursing, The University of Texas at Austin 1700 Red River, Austin Texas, 78712 (512) 471-9081
Participant Selection Criteria:	Mexican-American Females (Mexico or U.S. Born) Age 18-65 Minimum of one year with diabetes diagnosis More than two years working in farmwork
Participant Requirements:	(1) Agree to answer brief demographic survey. Consent to participate in an in-depth interview to be conducted in a place of comfort for participant. Interviews will include a brief demographic questionnaire and interview protocol containing questions about perceptions about type II diabetes mellitus and meanings attached to symptoms, illness and disease. Interviews will be conducted in English and/or Spanish according to participant's preference. Duration of interview is estimated at 90 minutes. Participants will be paid $10.00 for a completed interview.
Study Site Requirements:	(1) Assist in the identification of patients meeting selection criteria, and assist in contacting potential participants to schedule interviews.

Thank you for your help conducting this study. Questions or concerns about the project may be directed at any time to Olivia Lopez, Dr.Yolanda Padilla or Dr. Gayle Acton at the telephone numbers listed above. Results of the study will be shared with participating organizations when completed.

Appendix B: Recruitment Flyer

FEMALE FARMWORKERS

Do You Have Diabetes?
We would like to talk to you about your diabetes

YOU ARE INVITED TO BE IN THIS STUDY IF YOU:

- are Mexican-American (born in Mexico or U.S.)
- are between the ages of 18 – 65
- Have had diabetes for one year or more
- Worked in farmwork two years or more

You will receive $20.00 when you finish the study

For more information please call:

Albertina Reynoso
Community Developer
West Side Community Alliance
(209) 892-6688

Olivia Lopez
University of Texas, Austin
Doctoral Candidate
(209) 345-3535

(Golden Valley Health Centers' patients do not have to be in this study, but can volunteer for the study)

Appendix C: Verbal Consent Information Form
Mexican American Farmworking Women and Type II Diabetes

Conducted By: Olivia Lopez, MSW: Doctoral Candidate: University of Texas at Austin: School of Social Work; (512) 471-5457. Faculty Sponsor: Yolanda C. Padilla, PhD, LMSW-AP (512) 471-6266: Faculty Co-Sponsor: Gayle J. Acton, PhD, R.N. (512) 471-9081.

You have been invited to be interviewed for a study. This form gives you information about the study. The person doing this study will explain the study to you and answer all of your questions. Please ask questions about anything you don't understand before deciding if you want to be in this study or not. You do not have to be in this study if you do not want to and you won't lose any benefits that you already have. If you decide to be in this study you can just tell the person doing the study. Being in this study is completely voluntary. You can change your mind about being in this study at any time by just telling the person doing the study.

The purpose of this study is to understand how type II diabetes affects Mexican American farmworking women. I will interview 20 farmworking women

If you decide to be in this study, I will ask you to do the following things:

- answer questions from a three page questionnaire about your age, where your were born, employment and insurance, etc.
- answer questions from a two page interview form about diabetes

To be in this study and answer the questions will take about 90 minutes.

Risk and Benefits of being in the study

- the primary risk involved is the time it will take to finish the interview
- there is a small risk that after you talk about diabetes you might feel some worry
- there are no benefits for being in this study

Compensation

- you will receive $20.00 in cash for completing the study

Confidentiality

- interviews will be tape recorded and will not have your name on them
- the tapes will be listened to by me and my assistant and will be kept in a locked cabinet in my office
- tapes will be destroyed after we type them onto paper

Contact and Questions

If you have any questions about the study please ask now. If you have questions later or need more information, call Olivia at (209)345-3534; Dr. Padilla at (512) 471- 6266 or Dr. Acton at (512) 471-9081.

If you have any questions about your rights for being in this study, please call Clarke A. Burnham, PhD., Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects, (512) 232-4383.

You will be given a copy of this information to keep for your records

Appendix D: Demographic Questionnaire

1. What is your age? _____
2. Are you married?

   Yes_____ No_____ Living together _____
3. How many children do you have?

   None _____ Number of children _____
4. In what country were you born?

   U.S. _____ Mexico _____
5. If you were born in Mexico, in what city and state were you born?

   City_____ State _____
6. What was the highest grade you completed in school?

   U.S. _____Mexico _____ Other _____
7. How well can you speak English?

   No English _____A little _____ Very well_____
8. Can you read English?

   No _____ Basic Words _____Very well_____
9. How well can you read in Spanish?

   Cannot read in Spanish _____Basic words_____ Very well _____
10. How well do you write in Spanish?

    Cannot write in Spanish _____Basic words _____Very well_____
11. How do you get to your medical appointments?

    My own car _____ Family/Friends _____ Other _____

12. How long have you been a farmworker:

Years _____

13. How many months out of the year do you work?

Months _____

14. How many days a week do you work?

Days _____

16. How many hours do you work a day?

Hours _____

17. How much do you earn every month?

Dollars _____

18. How much time do you have for lunch?

Time _____

19. How much time do you have for breaks each day?

Time _____

20. Do you work near where you live?

Yes _____ No_____

21. Do you have to travel to other states to work?

Yes _____ No _____

22. Do you have medical insurance through your employer?

Yes _____ No _____ Other _____

23. How do you pay for your medical visits?

Insurance _____ Cash _____ No medical visits _____

24. How do you pay for your medicine?

Insurance _____Cash _____ I do not buy medicine _____

25. Did you have insurance when you were growing up?

Yes _____ No _____

26. How much do you spend each month on your diabetes medicine?

Dollars _____

27. What do you use to test sugar in your blood?

Glucose Strips_____ Monitoring machine _____Don't Test_____

28. Where do you buy your medicine?

Location_____

Appendix E: Interview Protocol

Overarching Question: What are the perceptions and meanings Mexican-American Farmworking women attribute to type II diabetes?

Sub-question: Tell me about how you know when you are sick.

Probes:

1. How did you find out you were sick with type II diabetes?
    a. Symptoms
    b. Family member or friend
    c. Medical doctor
2. What did you do to try and care for your symptoms?
    a. Consult with family or friends
    b. Home remedies
    c. Over the counter medications
    d. Purchase medications in Mexico
    e. Medicine prescribed by doctor

How do you think diabetes should be treated?

Probes:

3. What medications are you taking for your diabetes?
    a. Can you name them
    b. Do you understand how to take them
    c. Do you take them as prescribed
    d. Do you feel this medication helps you keep your diabetes under control
4. How do you know when your blood sugar is high?
    a. Do you know what your blood sugar is
    b. Check with a monitor (regularly)
    c. What do you do when you feel your blood sugar level is high
    d. What do you do when your blood sugar level is high for long periods of time

5. What kind of treatment do you think would work best to treat diabetes?
    a. Medicine
    b. Home remedies
    c. Exercise
    d. Diet

<u>How does a person get diabetes?</u>

Probes:

6. What do you think causes diabetes?
    a. How does a person get it
    b. Heredity
    c. Eating too many sweets
    d. Strong Emotions
    e. Lifestyle

<u>What do you think about diabetes?</u>

Probes:

7. When you talk about diabetes to your family or friends, what do you say about it?
    a. It can be cured
    b. Gift or punishment from God
    c. Complications
8. What did you think would happen to you when the doctor gave you the diagnosis of type II diabetes?
    a. Worried for my health
    b. He would give me medication
    c. How does it effect your life
9. Before you were diagnosed with diabetes what did you know about it?
    a. It could be treated with medications
    b. Complications
    c. Diet
    d. How do you describe diabetes

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